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10/02/00 C885 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No. 7905.15.1
Total Pages in this Submission

TO THE ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION

JC914 U.S. PTO 09/676956 10/02/00

and invented by:

Danne L. Buchanan
William Ronald Titus

If a CONTINUATION APPLICATION, *check appropriate box and supply the requisite information:*

☐ **Continuation** ☐ **Divisional** ☒ **Continuation-in-part (CIP)** of prior application No.: **09/560,779**

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

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Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having **fifty-nine (59)** pages and including the following:
   - a. ☒ Descriptive Title of the Invention
   - b. ☒ Cross References to Related Applications *(if applicable)*
   - c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
   - d. ☐ Reference to Microfiche Appendix *(if applicable)*
   - e. ☒ Background of the Invention
   - f. ☒ Brief Summary of the Invention
   - g. ☒ Brief Description of the Drawings *(if drawings filed)*
   - h. ☒ Detailed Description
   - i. ☒ Claim(s) as Classified Below
   - j. ☒ Abstract of the Disclosure

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Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*

   a. ☒ Formal Number of Sheets **twenty-20**

   b. ☐ Informal Number of Sheets _____

4. ☒ Oath or Declaration

   a. ☒ Newly executed *(original or copy)* ☐ Unexecuted

   b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*

   c. ☒ With Power of Attorney ☐ Without Power of Attorney

   d. ☐ *DELETION OF INVENTOR(S)*
   Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. 1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Computer Program in Microfiche *(Appendix)*

7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*

   a. ☐ Paper Copy

   b. ☐ Computer Readable Copy *(identical to computer copy)*

   c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☒ Assignment Papers *(cover sheet & document(s))*

9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*

10. ☐ English Translation Document *(if applicable)*

11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations

12. ☐ Preliminary Amendment

13. ☒ Acknowledgment postcard

14. ☒ Certificate of Mailing

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Docket No. 7905.15.1
Total Pages in this Submission

Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☐ Additional Enclosures *(please identify below):*

PTO-Form 2038 (Charge Form) charging the amount of as filing fee for utility patent application and $40.00 Assignment recordation fee

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra		Rate	Fee
Total Claims	26	- 20 =	6	x	$18.00	$108.00
Indep. Claims	2	- 3 =	0	x	$80.00	$0.00
Multiple Dependent Claims (check if applicable) ☐						$0.00
					BASIC FEE	$710.00
OTHER FEE *(specify purpose)*	**Assignment Recordation Fee**					$40.00
					TOTAL FILING FEE	$858.00

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- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Signature

Kevin K. Johanson
Registration No. 38,506

Dated: **October 2, 2000**

022913

cc:

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CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10) Applicant(s): **Danne L. Buchanan and William Ronald Titus**			Docket No. **7509.15.1**
Serial No. **Not Yet Assigned**	Filing Date **October 2, 2000**	Examiner **Not Yet Assigned**	Group Art Unit **Not Yet Assigned**

Invention: **METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION**

JC914 U.S. PTO 09/676956 10/02/00

I hereby certify that this **Utility Patent Application (including the items listed below)**
(Identify type of correspondence)
is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: The Commissioner of Patents and Trademarks, Washington, D.C. 20231-0001 on **October 2, 2000**
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Note: Each paper must have its own certificate of mailing.

Transmitted:
- Utility Patent Application (59 pgs.)
- Utility Patent Application Transmittal Letter (3 pgs.)
- Formal Drawings (20 sheets)
- Declaration, Power of Attorney, and Petition (3 pgs.)
- Assignment and PTO-Form 1595 Recordation Form Cover Sheet (4 pgs.)
- United States Patent and Trademark Credit Card Payment Form charging the amount of $858.00 (1 pg.)
- Certificate of Mailing by Express Mail Label No. EL571477579US
- Postcard

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UNITED STATES PATENT APPLICATION

of

Danne L. Buchanan

and

William Ronald Titus

for

METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION

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RELATED APPLICATIONS

This application is a continuation-in-part of U.S. Patent Application Serial No. 09/560,779, filed April 28, 2000, for "Method and System for Processing Financial Instrument Deposits Physically Remote from a Financial Institution."

BACKGROUND OF THE INVENTION

1. The Field of the Invention

The present invention relates to physical financial instrument processing. More particularly, the present invention relates to a method and system for remotely processing checks through electronic interaction between the physical location of the instrument and a financial institution.

2. Related Technology

The act of depositing or otherwise converting a financial instrument such as a check, draft, or other instrument has generally required the physical presentment of the instrument by the bearer to a financial institution such as a bank, credit union, or other institution authorized to accept and process monetary instruments. Indeed, the depositing and clearing of checks has heretofore involved individuals or organizations physically taking their deposit, such as in the form of a check, to financial institutions or trusted remote institutional branches, otherwise known as the bank of first deposit, where the deposit may be accepted, and credited to the bank customer's account, of course, subject to the check "clearing" with the maker financial institution.

Financial institutions have developed methods for reducing the amount of paper flow associated with checks within their organizations, however, their target has not been

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to reduce processing costs, improve the timeliness of the money collection from other financial institutions, and reduce costs associated with handling, storing and returning paper checks to the maker. Therefore, it would be an advancement to provide a new system centered on electronic information that does not require the use of paper items for any purpose.

Therefore, it would be advantageous to provide an electronic processing system and method that could provide a bearer of a check the convenience to "deposit" a check at a facility, such as a home or office, that is not a traditional bank or bank branch facility.

It would also be advantageous to provide a method and system for allowing the remote depositing and processing a check that does not require the physical routing of the actual check in order to accomplish the various post-deposit processing of a check. It would yet be a further advantage to provide a method and system for improving the collection time involved with the funds represented by the check (i.e., reduce credit "float").

It would be a benefit to provide a method and system for reducing expenses associated with the transportation costs involved in sending the checks from the bank of first deposit to the maker financial institution.

It would also be a benefit to provide a method and system for reducing the check storage expenses incurred by the bank of first deposit.

It would be a further benefit to enable the bank of first deposit to reduce the staffing, facilities (i.e., physical buildings), and equipment required to accept and process physical checks.

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SUMMARY AND OBJECTS OF THE INVENTION

The present invention has been designed to reduce the issues associated with the physical handling of paper items by financial institutions and to improve the collections of associated funds by processing electronic images of checks as opposed to the slower method of sending paper checks through the traditional check clearing routes. Not withstanding the premise for the inventive processes to use electronic images of items to facilitate processing and clearing of items, it would also be desirable for the present invention to accommodate the current use of paper items and all other commonly accepted methods for clearing checks until such time as the use of electronic images becomes a common accepted practice for clearing checks.

This new process involves inventive computer-based software that can be used at financial institution locations and locations remote from financial institution offices for capturing deposits, together herein referred to as remote locations. The remote capture system can be used by individuals and businesses (including the financial institution) to capture deposit information and images of the monetary items, such as checks, required for depositing the checks into their deposit accounts at the financial institution. Once this information is captured and validated at the remote site, it is transferred to the financial institution over telecommunications lines (leased lines, switched lines, Internet, etc.) to a receiving computer at the financial institution. The financial institution computer verifies the information received, stores the image of the items, and passes back to the remote site computer information that is used by the remote site computer to endorse, cancel, and item number, and otherwise mark, void, and identify the check. Another image of the check is then created at the remote location showing the endorsements information. This image is then sent to the central site of the financial institution for storage and to be used

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for research and re-depositing of the check if this becomes necessary. The depositor retains the deposit slips and monetary item(s) at the remote site.

As an alternative to the interactive process of passing voiding, endorsing, unique number information back and forth between the central site and the remote site, it will be possible (based on parameters set in the inventive software) to do most of the decision-making on the remote site processor before transmitting the check information to the central site. This can be done by pre-loading the endorsement, voiding, and item numbering information on the remote site processor and/or updating on a regular basis. This allows for checks to be endorsed, voided and item numbered and the image(s) associated with a check deposit to be created and passed to the central site without the need for interactive validation of data between the remote and central sites.

In addition to deposits, decisions based on remote site information, the present invention also allows deposits of any number, combination, and dollar amounts of deposit, and checks based upon decisions made regarding the customer by information stored at the central site. This information can be loaded onto the central site and communicated to the remote processor as part of the interactive exchange of data during the process of validating the deposit. Additionally, this information while being pre-loaded on the remote processor can also be updated on a regular basis.

Once complete deposit data is received by the central site processor at the bank of first deposit's central site, it is passed to the central site's check processing, deposit, and cash management, etc., systems for processing. As an alternative, if the remote site or central site is being used as a collection center for deposits from other institutions, the deposit information can be passed to the other institutions check processing, deposit, and cash management, etc., systems for processing. The image of the checks can be used to

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either print the customer statements (for items drawn on the bank of first deposit or routed through the normal check clearing paths (i.e. directly to clearing and correspondent banks or through the FRB electronic clearing process). If the maker or maker bank(s) require physical checks for their internal purposes, a duplicate check is printed by either the bank of first deposit's central site, or the maker bank or by the maker banks FRB, or by print centers arranged for by remote site or overall service provider or by third parties for the purpose of printing the checks.

Once received by the maker bank, the check image or duplicate printed check is processed by the maker bank through their computer systems and included as per their policies in their customer statements. Checks returned to the depositor for any reason will take the reverse path back to the depositor. Any re-depositing of items by the original depositor is done using the either the printed duplicate paper item (if there is one) or the original endorsed image created and stored at the bank of first deposit's central site.

All transmission of data preferably undergoes digital signature verification and certification and data encryption to ensure privacy and confidentiality of the data being transmitted. In addition, the check images will be stored on a document storage database at the remote site or bank of first deposit as well as Internet enabled and accessible database(s). The information on these database(s) will be available to the depositor and research personnel at the bank of first deposit's central site under security control through remote access such as Internet access.

The system includes computer hardware, computer software, apparatus, and methodology that enables individuals, businesses, and all types of organizations (both for profit and non-profit) to capture and securely transmit check images (including, but not

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limited to, personal checks, business checks, travelers checks, money orders, merchant coupons, food coupons, line of credit checks, etc.), deposit information, and other information from remote locations (i.e., locations that could include the financial institution's remote locations, other financial institution's locations, businesses, private residences, etc.), for the purpose of having those checks credited to the depositing individual's or organization's bank account(s) and having the check images (and/or physical checks) entered into the bank check clearing channels for ultimate delivery to the maker bank for payment out of the maker's account.

It should be appreciated that check images can be created by a variety of systems using various methods for capture and storage of images. Therefore, another embodiment of the invention provides for images being received from other systems, rather than captured by a dedicated remote imaging system, for the express purpose of using the inventive processes for expediting the clearing and collection of funds associated with those images. These alternative systems include lock box systems (designed to process payment coupons and capture the associated check(s) in payment for goods or services) and MICR image capture systems (as in a commercial bank capturing their physical deposits and using the inventive process to expedite collection of the checks based on processing the image instead of the physical check.)

In yet another embodiment of the invention, financial institutions wishing to use the invention for clearing of checks can send their physical checks to the institution using the invention. The institution using the herein-defined process may then capture the checks using conventional check capture and imaging system(s) and pass the image and MICR data to inventive process for the purpose of clearing the checks. In the present embodiments where check images are re-used as input from existing systems such as lock

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box or MICR, the check images from these other image capture system(s) are transmitted over telecommunications lines (leased lines, switched lines, Internet, etc.), or if the capture system is local to the central site processor, the image data is loaded directly to the central site computer using either telecommunications lines or local wiring designated for this purpose, and then to a receiving computer at the receiving financial institution. The receiving financial institution computer verifies the information received and edits the check images for completeness, stores the image of the items, and passes back to the sending computer information verifying successful receipt of the image data. If the images are not complete or the transmission was not completed correctly, the receiving central site processor notifies the sending computer and the data is corrected on the sending computer prior to re-transmission.

As an alternative, a representative at the receiving end can call a representative at the sending end and notify them of non-receipt or bad-receipt of data and arrange for data correction and/or retransmission. In these embodiments, all transmission of data preferably undergoes digital signature verification and certification and data encryption to ensure privacy and confidentiality of the data being transmitted. In addition, the check images will be stored on a document storage database at the remote site or bank of first deposit as well as Internet enabled and accessible database(s). The information on these database(s) will be available to the depositor and research personnel at the bank of first deposit's central site under security control through remote access such as Internet access.

These and other objects and features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

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BRIEF DESCRIPTION OF THE DRAWINGS

A more extensive description of the present invention, including the above-recited features, advantages, and objects, will be rendered with reference to the specific embodiments that are illustrated in the appended drawings. Because these drawings depict only exemplary embodiments, the drawings should not be construed as imposing any limitation on the present invention's scope. As such, the present invention will be described and explained with additional specificity and detail through use of the accompanying drawings in which:

Figure 1 illustrates an overview of a process of capturing and processing deposits from financial institutions and their branches which can be adapted to incorporate some of the features of the present invention;

Figure 2 illustrates an overview of remotely capturing and processing deposits remote from a financial branch or bank, in accordance with a preferred embodiment of the present invention;

Figure 3 is a more detailed block diagram showing the capturing and processing at the remote site or point of check presentment, in accordance with a preferred embodiment of the present invention;

Figure 4 illustrates central site processing of image data as captured at the remote site, in accordance with a preferred embodiment of the present invention;

Figure 5 illustrates processing at the maker or payor institution site, in accordance with a preferred embodiment of the present invention;

Figure 6 illustrates a processing diagram of the interaction between entities of the present invention;

Figure 7 is a process flowchart of check processing of the present invention;

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Figure 8 illustrates an overview of remotely capturing images through current art lock box and MICR image capture systems and processing them through the invention, in accordance with a preferred embodiment of the present invention;

Figure 9 illustrates central site processing of image data as captured through current art lock box and MICR image capture systems, and clearing them through the invention, in accordance with a preferred embodiment of the present invention; and

Figure 10 is a process flowchart of check processing of a preferred embodiment of the present invention and illustrated in Figure 8 and Figure 9.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention is described below with reference to drawings. These drawings illustrate certain details of specific embodiments that implement the systems and methods of the present invention. However, describing the invention with drawings should not be construed as imposing, on the invention, any limitations that may be present in the drawings. The present invention contemplates both methods and systems for remotely accepting a check for deposit and electronically processing the deposit without physically routing the physical paper copy of the check. The embodiments of the present invention may comprise a special purpose or general purpose computer including various computer hardware, the execution unit portion of which may also be known herein as a "processor."

Embodiments within the scope of the present invention also include computer-readable media for carrying or having computer-executable instructions or data structures stored thereon and also known as software. Such computer-readable media can be any available media which can be accessed by a general purpose or special purpose computer. By way of example, and not limitation, such computer-readable media can comprise RAM, ROM, EPROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to carry or store desired program code means in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer. When information is transferred or provided over a network or another communications connection (either hardwired, wireless, or a combination of hardwired or wireless) to a computer, the computer properly views the connection as a computer-readable medium. Thus, any such a connection is properly termed a computer-

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readable medium. Combinations of the above should also be included within the scope of computer-readable media. Computer-executable instructions comprise, for example, instructions and data which cause a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Computer-executable instructions may also be properly termed "software" as known by those of skill in the art.

Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by computers in network environments. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Computer-executable instructions, associated data structures, and program modules represent examples of the program code means for executing steps of the methods disclosed herein. The particular sequence of such executable instructions or associated data structures represent examples of corresponding acts for implementing the functions described in such steps.

Those skilled in the art will appreciate that the invention may be practiced in network computing environments with many types of computer system configurations, including personal computers, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by local and remote processing devices that are linked (either by hardwired links, wireless links, or by a combination of hardwired or wireless links) through a communications network. In a

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distributed computing environment, program modules may be located in both local and remote memory storage devices.

An exemplary system for implementing the portions of the invention includes a general purpose computing device in the form of a conventional computer, including a processing unit, a system memory, and a system bus that couples various system components including the system memory to the processing unit. The system memory may include read only memory (ROM) and random access memory (RAM). The computer may also include a magnetic hard disk drive for reading from and writing to a magnetic hard disk, a magnetic disk drive for reading from or writing to a removable magnetic disk, and an optical disk drive for reading from or writing to removable optical disk such as a CD-ROM or other optical media. The drives and their associated computer-readable media provide nonvolatile storage of computer-executable instructions, data structures, program modules and other data for the computer.

Program code or software means comprising one or more program modules may be stored on the hard disk, magnetic disk, optical disk, ROM or RAM, including an operating system, one or more application or software programs, other program modules, and program data.

The computer may operate in a networked environment using logical connections to one or more remote computers having processors. Logical connections may include a local area network (LAN) and a wide area network (WAN) that are presented here by way of example and not limitation. Such networking environments are commonplace in office-wide or enterprise-wide computer networks, intranets and the Internet.

It should also be pointed out that while the term "check" may be generically used herein, it is contemplated by the inventors that other financial instruments are also

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contemplated within this meaning and therefore, the use of the term "check" is assumed to have the broader meaning, both in the specification and the claims.

Additionally, the term "bank of first deposit" means the financial institution sponsoring the remote site and which owns or employs a central site for processing financial transactions.

Referring to Figure 1, a bank of first deposit 101 receives a check from the bearer to begin processing the instrument. Bank of first deposit 101 actually forwards, in step 113, the physical check(s) to a central site 102 for additional physical processing of the actual check. The physical check is processed at central site 102 using a reader/sorter (not separately shown but included in 102) to acquire information such as the information stored on the Magnetic Ink Character Recognition (MICR) line. This information includes the maker bank number, the account number, a check serial number, etc. The information from the check is then sent to an in-house computer system (included in 102) for posting in steps 114, 115 to the appropriate bearer account(s) 103, 104 in the bank of first deposit 101. If the check is an on us item (i.e. an item that is drawn on the bank that is processing it), the check is retained in a step 117 at storage 105 at bank of first deposit 101, otherwise the check is sent in steps 116 and 119 or, alternatively in step 118 into a maker bank 108 for collection of funds. The check(s) are either sent physically in step 118 directly to maker bank 108 or routed in steps 116 and 119 through a Federal Reserve Banks (FRB) 106 and107 check clearing processes to a maker bank 108.

The path taken by the check is determined by the working agreement that bank of first deposit 101 has with maker bank 108. If maker bank 108 is a member of the local clearing-house association (thereby being a clearing bank), the checks can be exchanged

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directly with maker bank 108. If the maker bank 108 is a correspondent bank (a bank that has agreed to exchange checks directly with the bank of first deposit) the checks can be sent directly to maker bank 108. All other checks are forwarded in steps 116 and 119 to the FRBS, 106 and 107 for exchange with maker bank 108. If a check is not paid by maker bank 108 for any reason (i.e. it is a forgery, there are not sufficient funds in the makers account to cover the amount of the check, etc.) the check is returned to the depositor using the reverse path. Once the check is received by maker bank 108, the check is processed in step 121 through the maker bank's check capture system 109. Information from the check is then sent in steps 122 and 123 to the maker bank's accounting systems 110 and 111 and the checks are either stored in step 124 at the maker bank's check storage 112, or sent directly to the maker with their check statement.

Figure 2 depicts a high-level processing diagram of the various entities involved in the overall financial processing of the present invention, in accordance with the preferred embodiment. The present invention comprises three primary processing entities: (i) a remote site 197, (ii) a central site 198, and (iii) a maker bank site 199. Each of these sites enlists specific processing techniques which furthers the novel financial instrument processing technique of the present invention.

In the present invention, a remote site processor 201 (further detailed in Figure 3) either autonomously, or under operator/depositor control initially remotely "processes" a check into electronic check data both in the form of image data and informational data which can be further processed and approved at subsequent portions of the overall process. In essence, the remote site provides a processing front-end that electronically interacts via interface 202 with central site 198 through the transfer of electronic check data for review and processing by electronic means at a central site. Remote site 197

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performs functions relating to the physical check including scanning, reading, and printing on the checks. Remote site 197 also exchanges image and/or authorization data with the other entities as further described below.

Central site 198 of Figure 2 interacts via interfaces 207, 208 with maker bank site 199 for completing the clearing process relating to the check or related instrument. Central site 198 is comprised of a central site processor 203 which coordinates verification and account interaction. Central site 198 also provides both electronic storage of image and information data as well as providing an interface to maker bank site 199. Central site 198 provides image conversion technology for converting check data from electronic form back to a hard copy check format for processing, printing, and archiving when required by more traditional banking processes. Otherwise, a system 205 may process the image of the check in image format. System 205 prevents the need to reprint the check and send the duplicate check through the check reader sorters.

Maker bank site 199 performs more traditional account processing of information received from central site 198 such as from central site Federal Reserve Bank 106. Maker bank site 199 is further comprised of maker bank FRB 107 and maker bank 108 and engages in account processing and statement generation.

Figure 3 depicts the remote site as well as the interaction by a depositor or operator, in accordance with a preferred embodiment. The present invention commences with the presentation of a physical instrument such as a check by a bearer to remote site 197. A remote scanner/reader/printer 309 provides the interface to the bearer for presentment of the check. Remote scanner/reader/printer 309, in the preferred embodiment, is a multifunction device capable of independently performing each of the functions of scanning, reading, and printing upon the check or physical financial

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instrument. It is also contemplated that individual devices for performing each of these functions, scanning-reading-printing, may be integrated, whether automatically or manually, to perform the combination of functions upon the check.

Remote scanner/reader/printer 309 is connected via an interface 310 to remote processor 201. Remote site processor 201, like each of the other processor elements in the present invention, may be comprised of execution-capable devices, and is preferably comprised of a computer, such as a personal, network, or general purpose computer. Remote processor 201 is further coupled to central site processor 203 via an interface transmission or network media 202, which may take the form of one or more of wired or wireless media such as public switched lines, Internet or wide-area network connection, microwave, satellite, digital phone, private leased lines, or any other current or future acceptable communications facility and may further employ include encryption over the interface.

Remote site processor 201 executes according to executable instructions such as computer-executable instructions which are figuratively depicted in Figure 3 as software 313. Software 313 is loaded or interfaces with remote processor 201 via a bus or other physical interface depicted as interface 312. Generally, software 313 is comprised of executable instructions for (i) causing remote site processor 201 to instruct and execute the necessary steps for capturing the check or financial instrument both physically and electronically, (ii) performing requisite data processing on the electronic data from the capturing step, and (iii) exchanging the captured data over interface or media 202 to central site processor 203 when appropriate.

While details relating to the processing and method steps executed by remote site processor 201 via software 313 are described below, remote site processor 201 further

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determines if remote processing decisional information such as comparison information for making decisions on the number of deposits, dollar amount of deposits or dollar amount of monetary items is available on remote site processor 201. If such decisional information is not available at remote site 197, then central site check processing may require additional steps. Remote site processor 201 also determines if the remote processing information needed to void, endorse and itemize number each check 303 is available to remote processor 201 for processing of check 303, according to the method of the present invention. If such remote processing information is available but not current, the remote processing information may be updated by either having the updated information manually entered, for example by way of an operator via a keyboard at terminal 301 attached to remote processor 201, or the updated information may be retrieved by remote processor 201, under the direction of software 313, from central site processor 203.

In a preferred embodiment, the updated information may be housed in a data set at central site processor 203 and updated by the bank of first deposit, affiliated with remote site 197 prior to loading to remote site processor 201. Remote site processor 201, executing software 313, then determines if all of the decisions concerning voiding, endorsing, item numbering, number of deposits, number of checks or dollar sizes of deposits or items can be made by remote site processor 201 by checking the remote processing information as pre-defined in remote site processor 201.

If the decisions on endorsing, voiding, item numbering, number of deposits, number or dollar amounts of deposits or monetary items can be made by remote site processor 201, then to ensure proper account processing of check 303, a depositor at terminal 301 is lead through a series of instructions to gather deposit information required

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to ensure credits are made to the appropriate deposit accounts(s). In one preferred embodiment, the deposit information is read, interpreted and entered automatically by reader/scanner/printer 309. In another embodiment, the deposit information is entered manually on, for example, terminal 301 attached to remote site processor 201. Additionally, during the practice of the invention, scanner/reader/printer 309 encodes check 303 with endorsement and voiding information in order to physically "void" check 303, thereby keeping check 303 from being re-transmitted, for example over media 202, or re-deposited at an actual financial institution location for an additional collection. In addition, a unique item identification number may be encoded on check 303 by remote site processor 201 via scanner/reader/printer 309 to aid in tracking data resulting from processing of check 303.

The process of the present invention continues when scanner/reader/printer 309 performs the functions of scanning check 303 to create electronic check data comprised of image data, informational data including MICR encoding (using either MICR, Optical Character Recognition (OCR) or other like techniques). Scanner/reader/printer 309 "voids" check 303 by endorsing check 303 and printing tracking data thereon. The electronic image data and informational data such as MICR information of the voided and endorsed check 303 is transferred over interface 310 to remote site processor 201 for processing which includes image integrity verification. When the image integrity is suspect, the integrity is enhance by either rescanning check 303 or, alternatively, by manual intervention by an operator at terminal 301. If check 303 is rescanned, scanner/reader/printer 309 does not reprint the endorsement, voiding and item numbering information on check 303.

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Once the electronic image data and the MICR encoding for the first check 303 is determined to be readable and accurate, remote site processor 201 determines if this process should be repeated for additional deposits and/or monetary item(s). When remote site processor 201 determines that processing by scanner/reader/printer 309 of individual check(s), under the direction of remote site processor 201 has ended and that the information is complete and ready for transmission via interface/media 202, remote site processor 201 formats the electronic image data and the MICR encoding and adds any additional control information in preparation for transmission to central site processor 203. The physical check 305 is stored in file 305 at the remote site. In addition, the check image is stored on the remote site processor (*i.e.*, magnetic disk, cd rom, etc. not shown on drawing.) Communications between remote site processor 201 and central site processor 203 preferably incorporates digital signature verification/certification performed by process 311 and data encryption performed by process 313 to ensure confidentiality.

Figure 4 depicts the central site processor and the various processes and interfaces associated therewith, in accordance with a preferred embodiment of the present invention. While the accuracy of electronic check data transferred from remote site processor 201 to central site processor 203 will generally retain its integrity through the transmission, when electronic check data received by central site processor 203, as evaluated and processed by computer-executable instructions or software loaded therein, is incomplete or inaccurate, or if the image data is not readable, central site processor 203 communicates with remote processor 201 giving detailed information to an operator at terminal 301 concerning the need for additional information to restore image information or complete incomplete or inaccurate data. Depending upon the type of missing or

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otherwise incorrect information, corrected or supplemental information may be supplied by an operator at terminal 301 at remote site 197. It may even be necessary to re-scan check(s) 303 and re-transmit at least portions of the check data including image and/or MICR data to central site processor 203. If check 303 is re-scanned, then endorsement, voiding and item number information are not reprinted on check 303.

Once central site processor 203 determines the new check data received for the deposit is accurate and complete, central site processor 203 stores the check image and MICR data of check(s) 303 along with any additional associated information such as time that deposit was captured, who the customer was who captured the deposit, item number, etc. as received from remote site 201. Central site processor 203 confirms receipt of accurate information by sending a notification reply to remote site processor 201 freeing-up remote site processor 201 for further processing of subsequent remote check deposit interactions. In alternate embodiments, central site processor 203 may store image data on an Internet-enabled check image document storage 405 thereby allowing access by the depositor/operator from a terminal such as terminal 301, their designee, or the financial institution of first deposit. It should be pointed out that because of present banking processes, the remote site should still be associated with a chartered financial institution that is authorized to accept the checks from the remote site and process them through normal check clearing paths. The remote site may be a branch extension of the financial institution or may be a person, or other entity with or without a legal relationship to the financial institution that provides the access services to the financial institution. Such an affiliated financial institution is still known as the bank of first deposit. The present embodiment does not propose eliminating the bank of first deposit, only replacing the method used to capture deposits. Central site processor 203 maintains authentication and

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data integrity at check image document storage 405 through the use of digital signature verification and certification, as well as via data encryption as shown in processes 314 and 315.

Referring back to Figure 3, in another embodiment, if the decisions of endorsing, voiding, item numbering, number of deposits number or checks or dollar amounts of deposits or monetary items cannot be made by remote site processor 201, for example, when the telecommunications line goes down and the decision information cannot be updated on the remote site processor, or when the central site processor is inoperable, or the specific remote site is not authorized to make these decisions (i.e. we will determine and pass that information to the remote site processor when the remote site processor contacts the central site processor prior to accepting deposit information at the remote site), then remote site processor 201 leads a depositor at for example terminal 301 through a series of instructions to gather deposit information required to ensure credits are made to the appropriate deposit accounts(s) 104. This can be done by either using the reader/scanner/printer 309 or by entering the necessary information on the terminal 301 attached to remote processor 201.

Then, check 303 is placed into the scanner/reader/printer 309 where the item is scanned, the MICR encoding is read preferably using either MICR or Optical Character Recognition (OCR) techniques, and an electronic image is created of check 303. The electronic image data and informational data such as MICR information is transferred from scanner/reader/printer 309 onto remote site processor 201 where remote site processor 201 edits and confirms that the electronic check data is readable. If the electronic check data is not readable or correct, the check data is corrected at the direction of remote site processor 201 by either re-scanning check 303 or having a remote site

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operator manually key the information in using terminal 301 or other interface device attached to remote site processor 201.

Once the check data is determined to be readable and accurate, remote site processor 201 then formats the scanned check data and adds additional control information in preparation for transmission to central site processor 203 and the alternate embodiment approach concludes.

Returning to Figure 4, after receipt of valid and accurate check data, if it is determined that the maker bank or maker of the check requires a physical item, the check image is printed in process 401 and then processed through the central site check image capture system 205. If a physical item is not required, the image is sent to the check image capture system 205. In either case, the check image capture system 205 interfaces with the central site 198 deposit systems 103, cash management systems 104, etc. for posting information. The central site then forwards either the printed duplicate check or check image to the maker bank 108. This can be done directly through path 208 if the bank of first deposit's central site 198 has an agreement with maker bank 108 to exchange checks directly, or if the maker bank and the central site bank of first deposit do not have an exchange agreement then through FRBs 106, 107 through path 207.

Figure 5 depicts the various component and processes of the maker bank site, in accordance with the preferred embodiments of the present invention.

The maker bank 108 receives either images of the original paper items 303 or printed duplicates of the original paper items 303 either directly from the bank of first deposit's central site through path 208 or from the central site Federal Reserve Bank (FRB) 106 clearing process through path 206 (Figure 4), 207, 120.

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Central site FRB 106 will process the check images or paper items through their capture system and forward the images or paper items to the maker bank FRB 107 through path 207. The maker bank FRB then processes the items or images through their check capture system 504 through path 503 and if necessary, (*i.e.*, when paper duplicate of item has not already been printed by the bank of first deposit), print a duplicate of the original check 303 image if a paper item is required by maker bank 108. As an alternative to the FRB printing an image of the item, a duplicate of the item could be printed by a print center that has been set up by the service provider for the purpose of printing the checks or by third parties that have been contracted for the purpose of printing the checks. A maker bank FRB 107 will then forward the printed items or images to the maker bank 108 via communications or transportation path depicted as path 120. Maker bank 108 will then process the image or paper item though their in-house application systems depicted by deposit system 110, print check image process, 509, check system process, and customer statement process 506 through paths 122, 507, 508, 121, 505, and 507.

These in house systems are not to be taken as systems that all banks will have or use for this process. They are meant to represent the in house processing by maker banks to post monetary items to their accounting systems and to send the items (either image or printed duplicate of original items) to the check maker.

Figure 6 is an interface diagram depicting a high level description of the interactions between the various components of the present invention, in accordance with a preferred embodiment.

In the preferred embodiment, the remote site operator enters deposit information into the remote processor then inserts a draft in a step 601 at the scanner/reader/printer

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located at the remote site. The scanner/reader/printer reads the item, digitizes and validates the check image information and passes it to the software on the remote site processor in a step 602. The remote site processor software receives the digitized data from the scanner/reader/printer and validates data to ensure that the check information is readable and valid in a step 603. When the image is ready for transmission to the central site. The remote site processor contacts the transmission facility and, incorporating digital signature verification and certification and data encryption software to ensure confidentiality, transmits in a step 604 the item image and control information to the central site. The central site receives the transmitted data and edits and in a step 611 verifies the check data for completeness and content.

When the central site has determined the check image and other associated data (relating to both the check image and data, and the deposit information) is complete and accurate and meets the deposit and/or item dollar limits, the central site stores the electronic image of the check and any additional associated information received from the remote site, and then confirms in a step 605 receipt of good information by sending to the remote site information needed to endorse the physical check and to void the physical item to keep it from being re-transmitted or deposited at a physical financial institution location for collection. In addition, a unique item identification number can be transmitted to the inventive software on the remote site processor for printing on the physical checks as a tracking and research mechanism. The invention allows for printing of the unique item number if it is determined by the bank employing the present invention that it is desirable to print the unique item number for tracking and research purposes.

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After the inventive software on the remote processor receives specific information required to void, endorse, and print the unique item number, the remote site processor and the scanner/reader/printer will pass the check again where the remote site will print in a step 606 the information on the physical item at the locations required by the rules governing automated check processing. The item is also scanned in a step 607 again under the direction of the remote site inventive software and the new image (containing endorsement, voiding and item number information), and associated additional information required by the inventive software for tracking and control purposes, is edited in a step 608 for accuracy and completeness and if correct is then transmitted in a step 609 to the central site by the remote site using the transmission facility set up for this purposes.

If the data is not readable or correct, the information is corrected at the direction of the remote site by either re-scanning the item or having the remote site operator key the information in using the terminal attached to the remote site processor. If the item is rescanned at this point, the endorsement, voiding and item number information is not reprinted by the scanner/reader/printer. When the image is ready for transmission to the central site, the remote site processor contacts the transmission facility and, incorporating digital signature verification and certification, and data encryption software to ensure confidentiality, transmits in a step 609 the item image and control information to the central site.

The central site receives the transmitted updated image data and edits in a step 613 for completeness and content. If the data is incomplete or inaccurate, or if the image data is not readable, the central site communicates, with the remote processor and gives detailed information to the operator concerning the need for additional information to

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complete the inaccurate data or image information. Based on the specific need, this information can be supplied using the terminal on the remote site processor or by re-scanning the physical item and re-transmitting it to the central site. In either case, this information is supplied under the direction of the remote site processor. Such additional information is transmitted to the central site processor from the remote site processor. If the physical item is rescanned at this point, the endorsement, voiding and item number information is not reprinted by the scanner/reader/printer.

Once the central site determines the new data received for the deposit is accurate and complete, the central site stores in a step 618 the updated image of the physical item (on the database(s) maintained by the bank of first deposit's central site for this purpose) along with any additional associated information received from the remote site, and then confirms receipt in a step 610 of good information by sending a notification to the remote site that the process for that specific deposit is complete unless more items are present in a step 615 and allows for termination of the transmission of information or for the same process to be followed for other items in a step 614 in that deposit or for another deposit in a step 616.

In another embodiment of the invention, the central site stores the check image(s) on an Internet enabled documents storage system allowing access by the depositor, their designee, or the central site processing center of the bank of first deposit. The central site for storing check images and associated information preferably employees incorporating digital signature verification and certification, and data encryption to ensure confidentiality.

If the check is removed from the scanner/reader/printer prematurely, at any time during the process of capturing and transmitting data from the remote site, the transaction

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information associated with that check will be considered invalid and not part of the deposit. The depositor will need to re-scan and re-enter data associated with that check.

The remote site operator will have the option at the remote site to release deposit information to the central site for processing. This can be done after either a completion of single deposit in step 615 (containing one or more checks) or after completion of all deposits in step 616 (each containing one or more checks) from the remote site.

After the deposit(s) from a specific remote site are complete, the central site formats deposit information for processing in the accounting systems of the bank of first deposit's central site in a step 619, including sending the image and other appropriate information for application processing in step 620 (including deposit accounting systems, MICR capture, cash management processing, float processing, etc.,).

If an item is an "on us" item, the central site determines that a physical check is required by the maker, that information is relayed to the central site and an identical image or facsimile of the original item can be printed by either the central site processor or by the item capture system in step 619. As an alternative to the central site processor or the item capture system printing an image of the item, a duplicate of the item could be printed by a print center that has been set up by the service provider for the purpose of printing the checks, or by third parties that have been contracted the purpose of printing the checks.

If the maker bank is a clearing or correspondent bank then the bank of first deposit will determine if the maker bank requires a paper or image item. If the maker bank requires a paper item, then the bank of first deposit's central site will print an exact duplicate of the paper item and route in step 621 the item to the maker bank. As an alternative to the bank of first deposit printing a duplicate of the item it could be printed

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by a print center that has been set up for the purpose of printing the checks, or by third parties that have been contracted for the purpose of printing the checks. The duplicate printed item will generally be as exact as possible based on the quality of the original image. If the maker bank does not require a paper item then the bank of first deposit will route the check image to the maker bank.

If the maker bank is not a clearing or correspondent bank, the check data including image will be forwarded in step 621 using the FRB item clearing processes to route the item image to the FRB affiliated with the maker bank. The maker bank FRB determines if the maker bank will accept check data including an image of the item. If the maker bank requires a paper item, the maker bank FRB prints an identical image of the original item with information showing that it is a duplicate and that the bank of first deposit is central site guarantees the item. As an alternative to the maker bank's FRB printing the item, it could be printed by a print center that has been set up for the purpose of printing the checks, or by third parties that have been contracted the purpose of printing the checks. This duplicated item is then sent in step 621 to the maker bank for the collections of funds.

As an alternative, the check image or a printed reproduction of the check can be sent in step 621 to the maker bank from either the bank of first deposit is central site or the maker bank FRB using any other acceptable clearing method or process.

Check items that need to be returned, are done so in steps 624 and 625 to the bank of first deposit to be routed back through the same route that was used to clear the item. If a paper item has been created, that item will be returned along with information showing the reason for return. Otherwise, the image will be used for return item purposes until the return item image is returned to the bank of first deposit's central site. At that point, if

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the remote site processor 201 is able to receive an item image, the image along with the return reason will be passed to the remote site processor 201. If the remote site processor is not capable of receiving check data including an item image, a paper duplicate showing the return reason will be printed either by the central site or by the item capture system under the direction of the central site and sent to the remote site operator 301. As an alternative to the central site computer or the item capture system printing the returned item the item could be printed by a print center that has been set up for the purpose of printing the checks, or by third parties that have been contracted for the purpose of printing the checks. The unique item number assigned at capture time by either the central site or the remote site can a be included in all return images and/or returned paper items to enable complete and accurate tracking of all return items

Re-deposit may be performed in steps 626, 627, 628 of items facilitated by the remote site prompting the remote site operator with instructions on how to scan and transmit the returned paper item or re-deposit the endorsed image previously captured and stored. The unique item number assigned at capture time by either the central site or the remote site facilitates both options.

Figure 7 is a detailed flowchart depicting the specific steps for carrying out the invention in accordance with a preferred embodiment.

In a step 700, the software is loaded or otherwise made available to the remote site processor for execution. Those skilled in the art appreciate the various processes and steps for performing loading of software into a processor such as the remote site processor. It is also contemplated within the scope of the present invention that the software for execution on any of the processors may take the form of embedded executable instructions.

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Query step 900 determines if deposit processing criteria, (e.g., deposit limit and endorsement information) are present at the remote site processor thereby enabling the initial check deposit processing decisions to be performed locally at the remote site processor or, alternatively, when the deposit processing criteria is not local on the remote site processor, processing passes through path 906 to step 701.

When query step 900 determines that deposit processing criteria is present at the remote site processor, a query step 910 determines if the information required to determine deposit limits and endorse the item is current on the remote site processor. If this information is present and current on the remote site processor, processing passes through path 911 to step 930 where the remote site operator enters deposit information, as well as the endorsement voiding and item numbering information in process step 931 prior to reading the first monetary item in process step 932 and then proceeding to query step 933. If this information is not present on the remote site processor or if it is not current, then query step 920 determines if this information can be updated by the operator. If the operator cannot update this information, then process step 926 allows for updating the deposit information from the central site processor and then proceeds to process step 930 where the operator begins the remote capture function by entering deposit information. If the operator can update this information, then process step 921 allows for the operator to update the deposit limit and endorsement information and then proceed to process query step 922.

Query step 922 determines if the remote site processor can make deposit limit and/or endorsement decisions. If the decision can be made by the remote site processor, then process step 930 allows for the remote operator to enter deposit information, as well as the endorsement voiding and item numbering information in process step 931 prior to

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reading the first monetary item in process step 932 and then proceeding to query step 933.

Query step 933 determines if the current item exceeds the item dollar limit or makes the deposit exceed the deposit dollar limit. If the limits are exceed then the process of entering items for the given deposit in process end 934, and the remote site operator has the option of beginning another deposit or ending the deposit process with the central site processor. If the limits are not exceeded, then process step 935 accounts for the scanned item 932 being edited for accuracy and completeness at the remote location prior to proceeding to query step 936 where it is determined if the data from the scanned item is correct.

In query step 936, if the data is correct, then query step 937 determines if there are more items to scan. If there are more items to scan, then process step 940 passes back to process step 930 to allow the remote operator to begin the item capture process over again. If query step 937 determines that there are no more items or deposits to process, then process step 941 prepares the item image data or check data for transmission prior to encrypting the data in process step 942 and digitally signing the data in process step 943. Process step 944 transmits the data image to the central site processor for editing in process step 747.

In query step 936, if the data is not correct, then query step 938 determines if the operator can correct the data using a data terminal connected to the remote site processor. If the operator can correct the data, it is done in process step 946 prior to passing through process step 947 and going back to query step 936 to test data image for correctness. In query step 938, if the scanned item image is not correct, process step 948 passes through to process 932 where the item is rescanned.

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Stepping back to query step 922, if endorsement and deposit limit information cannot be made by the remote site processor, then the remote site operator enters deposit information in process step 701 before scanning the physical monetary item in process step 702 after which the item image is edited in process step 703.

In query step 704, if the image data is not correct, the check is returned to process step 702 where it is rescanned and re-edited in step 703. If query step 704 determines the image data is correct, then the data is passed successfully through process step 710 where the image is prepared for transmission to process step 711 where the date is encrypted and step 712 where the digital signature is added in preparation for transmitting the data to the central site in process step 713.

Process step 714 receives the transmitted image data and passes it to query step 715 where it is edited for accuracy and completeness. If the data is not accurate or complete, it is passed to process step 720 where the data is corrected by requesting updated information from the remote site processor. If the remote site operator cannot supply correct date via the terminal attached to the remote site processor in query step 721, then the check passes through process step 725 to process step 702 where it is scanned again in preparation for editing and transmitting the corrected image to the central site processor. If the remote site operator is able and authorized to correct the data in query step 721, the data is entered in process step 722 and passed through path 723 to process step 711 where the data is encrypted in preparation for transmitting to the central site processor.

If in query step 715 the check image data is complete and accurate, the data is passed to process step 730 where the image is stored in data sets used by the bank for document archival and research as well as in a database that is Internet enabled and

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available for access and research purposes by the depositing customer and bank of first deposit. After the image is stored, a confirmation of good data receipt is created in process step 731. This confirmation contains necessary endorsement, item numbering and voiding information, which is added to the confirmation record in process steps 732 and 733 prior to the confirmation being sent to the remote site processor. The confirmation record is then data encrypted in process step 734 and a digital signature is added in process step 735 prior to the record being transmitted to the remote processor in process step 736. Upon receipt by the remote processor in process step 737, the endorsement, item numbering and voiding information is printed on the physical check in process step 738 prior to it being re-scanned in process step 739.

After a new check image is created showing the necessary endorsement and voiding information in process step 740, the new check image is edited to ensure the scanned check data is correct. If in query step 742, it is determined that the image data is not complete or accurate, the image is passed through process step 750 to process step 739 where the physical check is scanned again. If the check is passed through the reader again at this point, the endorsement information has already been printed and will not be printed again. If in query step 742 it is determined that the check image data is good, the data in prepared for transmission in process step 743 prior to the data being encrypted in process step 743 and digitally signed in process step 745 prior to being transmitted to the central site in process step 746.

As the central site receives the transmitted image data in process step 747, the image is edited by the central site software in process step 748 to ensure completeness and accuracy of data. Query step 756 determines quality of data and if the data is not complete or accurate, it is sent to query step 791 where it is determined if the deposit

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limit and or endorsement information is available on the remote site processor. If this information is available on the remote site processor then the central site processor communicates with the remote site processor through path 794 to determine if the remote site operator can supply the correct image data in query step 938. The process involved in query step 938 was discussed above. If query step 791 determines that the deposit limit and endorsement information is not on the remote processor then query step 795 determines if the remote operator can supply the correct image information. If the operator can supply the correct image information, it is entered in process step 796 and the check image is prepared for transmission in process step 797 and passed to process step 744 (previously discussed) for digital signature and transmission. If in query step 795 the operator cannot correct/update the image information, the check is processed through path 798 to process step 739 (previously discussed) where it is scanned again in preparation for transmitting to central site processor.

Stepping back to query step 756, if the data image is complete and accurate the endorsed image of the check is stored in process step 760 in datasets used by the bank for document archival and research as well as in a database in process step 762 that is Internet enabled and available for the depositing customer and bank of first deposit to be able to access for research purposes.

The central processor site then sends confirmation of good receipt of data in process step 762 to the remote processor in process step 763. At this point query step 764 at the remote processor determines if the deposit currently being worked on is complete. If the deposit is not complete, then process step 780 returns control to the previously discussed process step 702 where the next item is scanned. If the deposit is complete query step 764 asks the operator in query step 765 if there is another deposit. If there is

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another deposit to be processed, process step 766 passes through to previously discussed process step 701 where the new deposit process is initiated. If there is not another deposit as determined in query step 765, the remote entry process is completed and the captured deposit and image information is entered into application processing for the bank of first deposit's central site item capture system in process step 771, the deposit systems in process step 772 and the cash management systems in process step 773.

In the course of processing a deposit, it is integral to the decision making to understand which banks the deposited items are drawn (i.e. who is the maker bank). Query step 774 determines if the monetary items in the deposit are "on us" items (*i.e.* items drawn on the bank of first deposit). If the items are "on us," the system determines, in query step 850, if the check maker requires a paper check. If they do, then a duplicate of the original check is printed in process step 851 and the paper item is sent to the maker of the check. In addition, the image of the item is sent to process step 860 (discussed below) for processing on internal computer accounting systems. In query step 850, if the maker of the check does not require a paper duplicate of the original item, process step 860 passes the checks image through the internal accounting systems to query step 861 where it is determined if the item is payable (*i.e.*, does the check maker have sufficient funds in their account to cover the check, is the maker account still open, etc.).

If query step 861 determines the item is payable, the check data is posted to the maker's account and the process ends for that check item in step 863. If query step 861 determines the item is not payable, then process step 870 returns either the printed duplicate of the check or the check image to the original depositor at the remote location. In query step 871, a remote site operator determines if they want to re-deposit the item or return it. If they decide to return the item, this is done in process step 880 and path 881

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sends control to previously discussed process end step 863. If query step 871 determines that the item should be re-deposited for collection, query step 872 determines if this is to be done using the duplicate paper item or the original check image.

If the return from query step 872 is to be done using the duplicate paper item, then this is done in path 873 where control is sent back to previously discussed process step 764 where the item is deposited using the scanner/reader/printer. If the check return from query step 872 is to be done using the original captured check image for the item, process step 875 allows for the remote operator to initiate this process in a step 875 by entering the unique number assigned to the original check at capture time. This information is sent to the central site processor via process step 876 and control is then passed through path 877 to process step 764 where the item is deposited using the check original check image.

Stepping back to query step 774 where it is determined if the item is an on us item, if query step 774 determines that the item in not an "on us" item then query step 800 determines if the maker bank is a clearing bank or a correspondent bank. If the maker bank is a clearing bank or a correspondent bank, then query step 801 determines if the maker bank requires a paper copy of the original check item. If they require a paper duplicate, then a paper duplicate of the original item is printed in process step 802 and sent to the maker bank in path 803 which passes control to process step 805 discussed below. If query step 801 determines that the maker bank does not require a printed duplicate check, the image of the original item drawn on the maker bank is sent to the maker bank in process step 805 and the maker bank sends the item through path 806 to previously discussed process step 861 to determine if the item is payable at the maker bank.

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Stepping back to query step 800, if the payee bank is not a clearing bank or correspondent bank, process step 810 sends the check image to the Federal Reserve Bank (FRB) serving as the clearing entity for the bank of first deposit. That branch of the Federal Reserve Bank forwards the check image to the Federal Reserve Bank serving as the clearing agent for the maker bank. That Federal Reserve Bank determines in query step 811 if the maker bank requires a paper duplicate of the original paper check. If the maker bank requires a paper item, the FRB prints the paper item in process step 812, incorporates the duplicate check in their processing systems as depicted in process step 813 where the item is sent in path 814 to process step 815 where the maker bank receives the paper item. As an alternative to the FRB printing a duplicate of the item it could be printed by a print center that has been set up for the purpose of printing the checks or by third parties that have been contracted for the purpose of printing the checks. If in query step 811 the maker bank does not require a paper check, the FRB sends the image to the maker bank that receives the image in process step 815 and passes, via path 816, either the check image or printed duplicate of the original check to previously discussed query step 861 to determine if the item is payable by the maker.

Figure 8 depicts a high-level processing diagram of the various entities involved in the overall financial processing in accordance with another embodiment of the present invention. The present embodiment comprises three primary processing entities: (i) a capture site 196, (ii) a central site 198, and (iii) a maker bank site 199. Each of these sites enlists specific processing techniques which further the financial instrument processing technique of the present invention. In this embodiment capture site 196 represents sites incorporating front-end processing such as, for example, lock box and MICR processing sites that will be enabled to capture physical items of item images for the purpose of

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interfacing into the invention. While Figure 8 depicts both lock box and MICR within site 196, it is generally the case that only a single function is resident within a site and in the present embodiment, these distinct functionalities are alternatives and are depicted both within site 196 for illustrative conciseness. Sites 198 and 199 represent similar sites as described above in the earlier embodiments.

Those of skill in the art appreciate the functionality of "lock box" systems and "MICR" system. In short, "lock box" systems are a collection method used to accelerate the processing of a business entity's receivables by allowing a service provider, usually a bank or other financial institution, to collect payments and process receivables on behalf of the business entity, generally by directing customers to send payments to a post office box or other address controlled by the service provider. The service provider picks-up the payments from the box and processes the payments and posts the payments to an account. Receipts and/or copies of the checks are then forwarded back to the business entity.

MICR systems are check reading systems capable of reading routing and financial institution information that has been printed on the check or other instrument using magnetic ink and in a special font. MICR systems may also generate transactional data from the magnetic ink characters for processing by a financial institution.

In the present embodiment, a remote site 196 captures item images using traditional methods for capturing monetary items such as lock box processing sites or MICR capture sites. The methods at these sites 196 either autonomously, or under operator/depositor control initially remotely "processes" a check into electronic check data both in the form of image data and informational data which can be further processed and approved at subsequent portions of the overall process. In essence, the

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capture site 196 provides a processing front-end that electronically interacts via interface 1520, 1530 with central site 198 through the transfer of electronic check data comprised of check images, and/or MICR line information for review and processing by electronic means at a central site. Remote-capture site 196 performs functions relating to the physical check including validating the check and image data and printing on the checks. Capture site 196 also exchanges image and/or authorization data with the other entities as further described below.

Central site 198 of Figure 8 interacts via interfaces 1520, 1530 with maker bank site 199 for completing the clearing process relating to the check or related instrument. Central site 198 is comprised of a central site processor 203, which coordinates verification and account interaction. Central site 198 also provides both electronic storage of image and information data as well as providing an interface to maker bank site 199. Central site 198 provides image conversion technology in central site processor 203 for converting check data from electronic form back to a hard copy check format for processing, printing, and archiving when required by more traditional banking processes. Otherwise, a system 205 may process the image of the check in image format. System 205 prevents the need to reprint the check and send the duplicate check through the check reader sorters. Maker bank site 199 performs more traditional account processing of information received from central site 198 such as from central site Federal Reserve Bank 106. Maker bank site 199 is further comprised of maker bank FRB 107 and maker bank 108 and engages in account processing and statement generation.

Figure 9 depicts the central site processor and the various processes and interfaces associated therewith, in accordance with a preferred embodiment of the present invention. While the accuracy of electronic check data transferred from lock box

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processor 1500 and financial institution processor 1510 to central site processor 203 will generally retain its integrity through the transmission, when electronic check data received by central site processor 203, as evaluated and processed by computer-executable instructions or software loaded therein, is incomplete or inaccurate, or if the image data is not readable, central site processor 203 communicates with remote processors 1500 and 1510 giving detailed information to an operator concerning the need for additional information to restore image information or complete incomplete or inaccurate information.

Once central site processor 203 determines the new check data received for the lock box processor 1500 or financial institution processor 1510 is accurate and complete, central site processor 203 stores the check image and MICR data of check(s) 303 (Figure 3) along with any additional associated information such as time that deposit was captured, who the customer was who captured the deposit, item number, etc. as received from remote capture site 196. In alternate embodiments, central site processor 203 may store image data on an Internet-enabled check image document storage 405 thereby allowing access by the depositor/operator from a terminal such as terminal 301, their designee, or the financial institution of first deposit. It should be pointed out that because of present banking processes, the remote site should still be associated with a financial institution that is authorized to accept the checks from the remote site and process them through normal check clearing paths. The remote site may be a branch extension of the financial institution or may be a person, or other entity with or without a legal relationship to the financial institution that provides the access services to the financial institution. Such an affiliated financial institution is still known as the bank of first deposit. The present embodiment does not propose eliminating the bank of first deposit,

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only replacing the method used to capture deposits. Central site processor 203 maintains authentication and data integrity at check image document storage 405 through the use of digital signature verification and certification, as well as via data encryption as shown in processes 314 and 315.

Returning to Figure 9, after receipt of valid and accurate check data, if it is determined that the maker bank or maker of the check requires a physical item, the check image is printed in process 401 and then processed through the central site check image capture system 205. If a physical item is not required, the image is sent to the check image capture system 205. In either case, the check image capture system 205 interfaces with the central site 198 deposit systems 103, cash management systems 104, etc. for posting information. The central site then forwards either the printed duplicate check or check image to the maker bank 108. This can be done directly through path 208 with maker bank 108 to exchange checks directly, or through FRBs 106, 107 through paths 207, 1540 or through any other clearing bank.

Figure 10 is a detailed flowchart depicting the specific steps for carrying out the invention in accordance with a preferred embodiment.

In a step 1000, items are formatted for transmission from systems such as lock box processors 1500 or financial institution processors, such as MICR systems, 1510 where the checks have been captured, balanced and reconciled. The data is encrypted in step 1002 and is either digitally signed or protected by any other reasonably secure method in step 1004. The process of encrypting and digitally signing data is to ensure privacy and security as the data is transmitted over publicly and privately accessible transmission facilities. The images that are formatted for transmission are comprised of corrected check images and MICR line information resulting from the lock box and

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MICR capture processes at the Lock Box Processor sites 1500 and Financial Institution Processor sites 1510. The formatted data are transmitted in step 1006 to the central site processor over transmission facilities 1520 and 1530 respectively, where it is received in process step 1010. Those skilled in the art appreciate the various processes and steps for performing loading of software into a processor such as the central site processor. It is also contemplated within the scope of the present invention that the software for execution on any of the processors may take the form of embedded executable instructions.

The transmitted data passes through process step 1020 to query step 1030 where the central site processor determines if the data transmission was completed successfully and if the data received is correct. If it is determined in query step 1030 that the transmission was not completed successfully the transmitter site is notified in process step 1480 to re-transmit the data and the process begins again by passing through process step 1490 to process step 1000 to begin the transmission process again. If in query step 1030 it is determined that the transmission was successfully completed then process step 1040 validates that the data is correctly formatted and that the content is such that is can be processed by the central site processor. If it is determined in query step 1050 that the data content is not useable or that the data is not formatted correctly then in process step 1460 the transmitter site is notified to correct and re-transmit the data and process step 1470 passes to process step 1000 to begin the transmission process again once the data has been corrected by the capture site 196. If in query step 1050 it is determined that the check image and MICR data is complete and accurate, the data is passed to process step 1060 where the image is stored in data sets used by the bank for document archival and research as well as in a database in process step 1070 that is Internet enabled and

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available by the depositing customer and bank of first deposit to be able to access for research purposes.

In the course of processing check images, it is informative to the decision making to understand on which banks the imaged items are drawn (i.e. who is the maker bank). Query step 1080 determines if the monetary items in the deposit are "on us" items (*i.e.* items drawn on the bank of first deposit). If the items are "on us," the system determines, in query step 1090 if the item is payable. If query step 1090 determines the item is payable (*i.e.*, does the check maker have sufficient funds in their account to cover the check, is the maker account still open, etc.) then process step 1100 posts the check data to internal accounting systems Then process step 1110 and query step 1120 determine if the maker needs to have a paper copy of the check. If the maker requires a copy of the check that copy is printed in process step 1130 and the check is included in the maker's regular statement in process 1140 and the process ends in step 1150. If in query step 1120 it is determined that the maker doesn't need a paper copy of the original check then the check image is included in the customers regular statement in process step 1160 and the process is ended with step 1170. Stepping back to query step 1090, if it is determined that the on-us item in not payable by the maker the check image or physical item is returned to the depositor in process step 1180 and the process ends in step 1182.

Returning to query step 1080 if it is determined the item is not an on-us item then query step 1190 determines if the maker bank is a clearing bank or a correspondent bank. If the maker bank is a clearing bank or a correspondent bank then query step 1200 determines if the clearing bank or correspondent bank needs a paper check. If it is determined that a paper check is required by the clearing bank or correspondent bank then a duplicate of the original check is printed from the image and forwarded to the

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clearing bank in process step 1210. The clearing bank or correspondent bank receives the printed copy of the check in process step 1220 and determines passing through process step 1230 to query step 1240 if the item is payable by the maker. If it is determined in query step 1240 that the item is payable by the maker, the item is posted into the maker's account in process step 1250 and the process comes to an end in step 1260. If, however, in query step 1240 it is determined that the item is not payable by the maker the check image or physical duplicate item is returned, using traditional check return techniques, to the original depositor in process step 1270 and the process comes to an end in step 1280.

Returning to query step 1200, if it is determined that the clearing bank or correspondent bank does not need a paper check to process through their systems or for the maker's statement then the check image is sent to the clearing bank or correspondent bank in process step 1290 and process step 1300 directs the process to process step 1230 where it is determined if the item is payable by the maker. The clearing bank or correspondent bank determines by passing through process step 1230 to query step 1240 if the item is payable by the maker. If it is determined in query step 1240 that the item is payable by the maker the item is posted into the maker's account in process step 1250 and the process comes to an end in step 1260. If however, in query step 1240 it is determined that the item is not payable by the maker the check image or physical duplicate item is returned, using traditional check return techniques, to the original depositor in process step 1270 and the process comes to an end in process step 1280.

Returning to query step 1190, if the payee bank is not a clearing bank or a correspondent bank, process step 1310 sends the check image to the Federal Reserve Bank (FRB) serving as the clearing entity for the bank of first deposit. That branch of the Federal Reserve Bank forwards the check image to the Federal Reserve Bank serving as

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the clearing agent for the maker bank. As an alternative, the bank of first deposit can send the check directly to the FRB acting as the clearing agent for the maker bank. The Federal Reserve Bank acting as the clearing bank for the maker bank determines in query step 1320 if the maker bank requires a paper duplicate of the original paper check. If the maker bank requires a paper item, the FRB prints the paper item in process step 1330, incorporates the duplicate check in their processing systems as depicted in process step 1340 and the maker bank receives the paper item in process step 1350 and passes to process step 1360 to determine if the item is payable by the maker as determined in query step 1370. As an alternative to the FRB printing a duplicate of the item in process step 1330, a duplicate could be printed by a print center set-up for the purpose of printing the checks or by third parties that have been contracted for the purpose of printing the checks. If in query step 1370 the item is payable the item is posted to the maker's account in process step 1380 and through the clearing or correspondent banks other internal accounting systems in process step 1390 and the process ends in step 1400. If in query step 1370 it is determined that the item is not payable by the maker the item image or printed item is returned to the original depositor in process step 1410 and the process ends in step 1420.

Stepping back to query step 1320, if the maker bank does not require a paper check, the FRB sends (in process step 1430) the image to the maker bank that receives the image in process step 1440 and passes through process step 1450, via path 1360, the check image of the original check to previously discussed query step 1370 to determine if the item is payable by the maker. Process step 1360 passes to query step 1370 to determine if the item is payable by the maker. If the item is payable then in process step 1380 the item is posted to the maker's account in process step 1390 and the process ends

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in step 1400. Stepping back to query step 1370, if the item is not payable either the check image or the printed duplicate of the original monetary item is returned to the original depositor in process step 1410 and the process ends in step 1420.

The present invention may be embodied in other forms without departing from its spirit or essential characteristics. As properly understood, the preceding description of specific embodiments is illustrative only and in no way restrictive. The scope of the invention is, therefore, indicated solely by the appended claims as follows.

What is claimed and desired to be secured by United States Letters Patent is:

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1. A method for processing a check deposited at a non-maker bank remote-capture site, said remote-capture site capable of interfacing with a financial institution, without forwarding the original check to a maker bank, said method comprising the steps of:

a) converting said check into electronic check data at said remote-capture site;

b) electronically exchanging said check data with said financial institution; and

c) said financial institution crediting an account according to said check data without referencing said original check.

2. The method as recited in claim 1, wherein said converting step comprises the steps of:

a) scanning at said remote-capture site said check to create image data, said image data representing an electronic image of said check, said remote-capture site being a lock box system; and

b) reading at said remote-capture site said image data to create informational data from said image data to aid in electronic processing of said deposited check.

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3. The method as recited in claim 2, wherein said electronically exchanging said check data step comprises the step of:

a) sending said check data from said non-financial institution location to said financial institution over an electronic channel;

b) said financial institution verifying said check data with account records accessible by said financial institution;

c) when said check data conforms to said account records, said financial institution confirming said check data to said remote location; and

d) said non-financial institution location processing said check data into processed check data in response to said confirming step.

4. The method as recited in claim 3, wherein said financial institution confirming said check data step comprises the steps of:

a) said financial institution acknowledging to said remote location receipt and accuracy of said check data; and

b) said financial institution sending acknowledgement of accurate receipt of said check data to said remote location.

5. The method as recited in claim 3, further comprising the step of:

a) following said processing said check data into processed check data step, said remote location secondly converting said processed check data into electronic processed check data.

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6. The method as recite in claim 3, wherein said crediting said account according to said check data step further comprises the step of:

a) when said financial institution is not the maker bank of said check, sending said processed check data to said maker bank for clearing said check.

7. The method as recited in claim 6, wherein said sending said processed check data to said maker bank for clearing said check step comprises the steps of:

a) when said maker bank is electronic exchange-capable, electronically exchanging said processed check data with said maker bank; and

b) when said maker bank is not electronic exchange-capable, printing a facsimile of said check from said processed check data; and forwarding said facsimile of said check to said maker bank.

8. The method as recited in claim 1, wherein said converting step comprises the steps of:

a) scanning at said remote-capture site said check to create image data, said image data representing an electronic image of said check, said remote-capture site being a Magnetic Ink Character Recognition (MICR) system;

b) reading at said remote-capture site said image data to create informational data from said image data to aid in electronic processing of said deposited check; and

c) reading at least a portion of said check to determine additional informational data stored in a Magnetic Ink Character Recognition (MICR) line.

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9. The method as recited in claim 8, wherein said electronically exchanging said check data step comprises the step of:

a) sending said check data from said non-financial institution location to said financial institution over an electronic channel;

b) said financial institution verifying said check data with account records accessible by said financial institution;

c) when said check data conforms to said account records, said financial institution confirming said check data to said remote location; and

d) said non-financial institution location processing said check data into processed check data in response to said confirming step.

10. The method as recited in claim 9, wherein said financial institution confirming said check data step comprises the steps of:

a) said financial institution acknowledging to said remote location receipt and accuracy of said check data; and

b) said financial institution sending acknowledgement of accurate receipt of said check data to said remote location.

11. The method as recited in claim 9, further comprising the step of:

a) following said processing said check data into processed check data step, said remote location secondly converting said processed check data into electronic processed check data.

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12. The method as recite in claim 9, wherein said crediting said account according to said check data step further comprises the step of:

a) when said financial institution is not the maker bank of said check, sending said processed check data to said maker bank for clearing said check.

13. The method as recited in claim 12, wherein said sending said processed check data to said maker bank for clearing said check step comprises the steps of:

a) when said maker bank is electronic exchange-capable, electronically exchanging said processed check data with said maker bank; and

b) when said maker bank is not electronic exchange-capable, printing a facsimile of said check from said processed check data; and forwarding said facsimile of said check to said maker bank.

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14. A computer-readable medium having computer-executable instructions for performing a method for processing a check deposited at a non-maker bank remote-capture site, said remote-capture site capable of interfacing with a financial institution without forwarding the original check to a maker bank, said computer-executable instructions for performing the steps of:

a) converting said check into electronic check data at said remote-capture site;

b) electronically exchanging said check data with said financial institution; and

c) said financial institution crediting an account according to said check data without referencing said original check.

15. The computer-readable medium having computer-executable instructions, as recited in claim 14, wherein said computer-executable instructions for performing said converting step comprise computer-executable instructions for performing the steps of:

a) scanning at said remote-capture site said check to create image data, said image data representing an electronic image of said check, said remote-capture site being a lock box system; and

b) reading at said remote-capture site said image data to create informational data from said image data to aid in electronic processing of said deposited check.

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16. The computer-readable medium having computer-executable instructions, as recited in claim 15, wherein said computer-executable instructions for performing said electronically exchanging said check data step comprises computer-executable instructions for performing the step of:

a) sending said check data from said non-financial institution location to said financial institution over an electronic channel;

b) said financial institution verifying said check data with account records accessible by said financial institution;

c) when said check data conforms to said account records, said financial institution confirming said check data to said remote location; and

d) said non-financial institution location processing said check data into processed check data in response to said confirming step.

17. The computer-readable medium having computer-executable instructions, as recited in claim 16, wherein said computer-executable instructions for performing said financial institution confirming said check data step comprises computer-executable instructions for performing the steps of:

a) said financial institution acknowledging to said remote location receipt and accuracy of said check data; and

b) said financial institution sending acknowledgement of accurate receipt of said check data to said remote location.

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18. The computer-readable medium having computer-executable instructions, as recited in claim 16, wherein said computer-executable instructions further comprise computer-executable instructions for performing the step of:

a) following said processing said check data into processed check data step, said remote location secondly converting said processed check data into electronic processed check data.

19. The computer-readable medium having computer-executable instructions, as recite in claim 16, wherein said computer-executable instructions for performing said crediting said account according to said check data step further comprises computer-executable instructions for performing the step of:

a) when said financial institution is not the maker bank of said check, sending said processed check data to said maker bank for clearing said check.

20. The computer-readable medium having computer-executable instructions, as recited in claim 19, wherein said computer-executable instructions for performing said sending said processed check data to said maker bank for clearing said check step comprises computer-executable instructions for performing the steps of:

a) when said maker bank is electronic exchange-capable, electronically exchanging said processed check data with said maker bank; and

b) when said maker bank is not electronic exchange-capable, printing a facsimile of said check from said processed check data; and forwarding said facsimile of said check to said maker bank.

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21. The computer-readable medium having computer-executable instructions, as recited in claim 14, wherein said computer-executable instructions for performing said converting step comprises computer-executable instructions for performing the steps of:

a) scanning at said remote-capture site said check to create image data, said image data representing an electronic image of said check, said remote-capture site being a Magnetic Ink Character Recognition (MICR) system;

b) reading at said remote-capture site said image data to create informational data from said image data to aid in electronic processing of said deposited check; and

c) reading at least a portion of said check to determine additional informational data stored in a Magnetic Ink Character Recognition (MICR) line.

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22. The computer-readable medium having computer-executable instructions, as recited in claim 21, wherein said computer-executable instructions for performing said electronically exchanging said check data step comprises computer-executable instructions for performing the step of:

a) sending said check data from said non-financial institution location to said financial institution over an electronic channel;

b) said financial institution verifying said check data with account records accessible by said financial institution;

c) when said check data conforms to said account records, said financial institution confirming said check data to said remote location; and

d) said non-financial institution location processing said check data into processed check data in response to said confirming step.

23. The computer-readable medium having computer-executable instructions, as recited in claim 22, wherein said computer-executable instructions for performing said financial institution confirming said check data step comprises computer-executable instructions for performing the steps of:

a) said financial institution acknowledging to said remote location receipt and accuracy of said check data; and

b) said financial institution sending acknowledgement of accurate receipt of said check data to said remote location.

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24. The computer-readable medium having computer-executable instructions, as recited in claim 22, further comprising computer-executable instructions for performing the step of:

a) following said processing said check data into processed check data step, said remote location secondly converting said processed check data into electronic processed check data.

25. The computer-readable medium having computer-executable instructions, as recite in claim 22, wherein said computer-executable instructions for performing said crediting said account according to said check data step further comprises computer-executable instructions for performing the step of:

a) when said financial institution is not the maker bank of said check, sending said processed check data to said maker bank for clearing said check.

26. The computer-readable medium having computer-executable instructions, as recited in claim 25, wherein said computer-executable instructions for performing said sending said processed check data to said maker bank for clearing said check step comprises computer-executable instructions for performing the steps of:

a) when said maker bank is electronic exchange-capable, electronically exchanging said processed check data with said maker bank; and

b) when said maker bank is not electronic exchange-capable, printing a facsimile of said check from said processed check data; and forwarding said facsimile of said check to said maker bank.

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60 EAST SOUTH TEMPLE

ABSTRACT OF THE INVENTION

A system that includes computer hardware, computer software, apparatus, and methodology that enables individuals, businesses, and all types of organizations (both for profit and non-profit) to capture and securely transmit check images (including, but not limited to, personal checks, business checks, travelers checks, money orders, merchant coupons, food coupons, line of credit checks, etc.), deposit information, and other information from capture sites that preprocess financial instruments and generate data from the original instruments, for the purpose of having those checks credited to the depositing individual's or organization's bank account(s) and having the check images (and/or physical checks) entered into the bank check clearing channels for ultimate delivery to the maker bank for payment out of the maker's account.

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60 EAST SOUTH TEMPLE

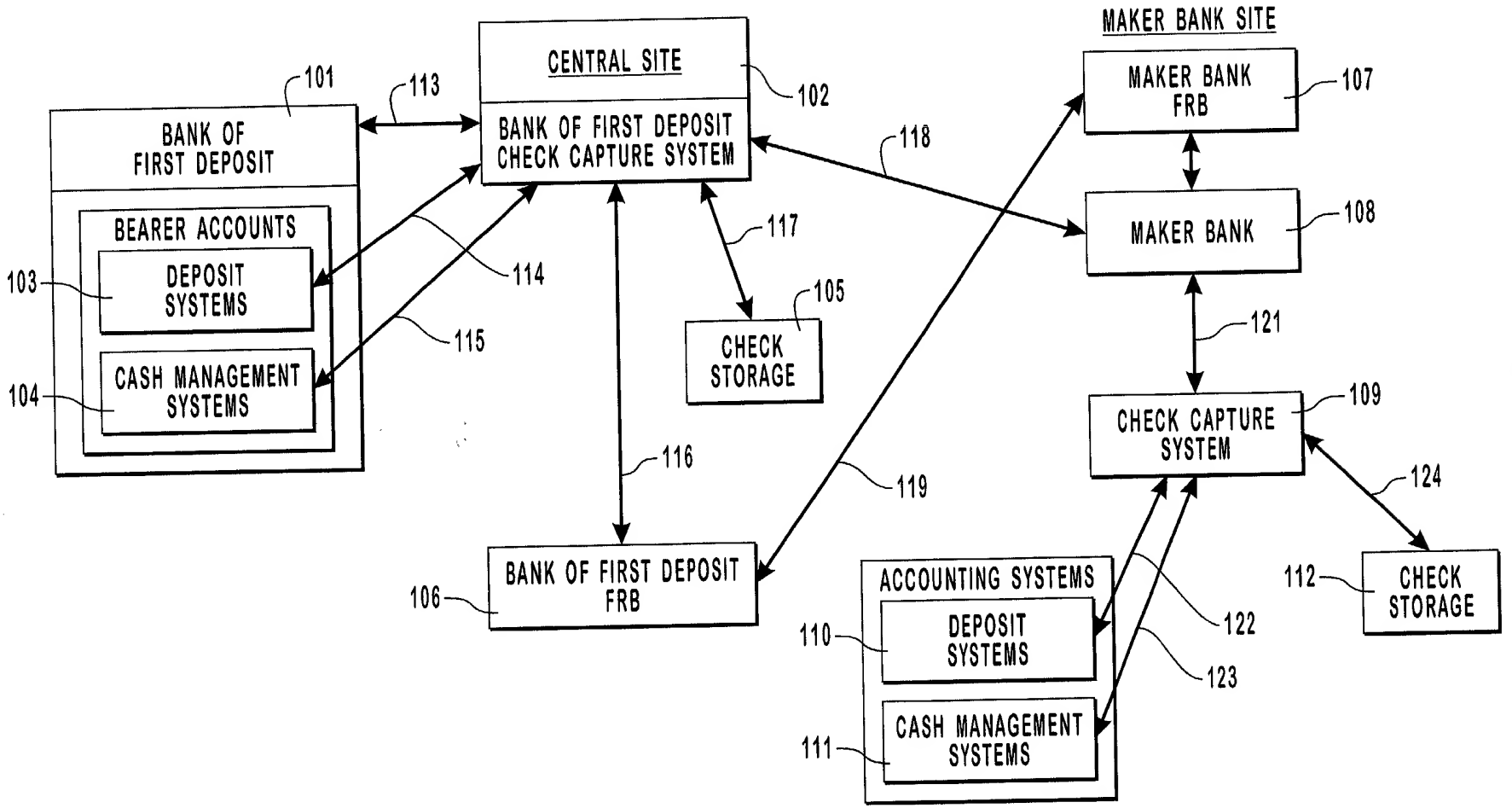
CENTRAL SITE
BANK OF FIRST DEPOSIT CHECK CAPTURE SYSTEM
102
MAKER BANK SITE
MAKER BANK FRB
107
BANK OF FIRST DEPOSIT
101
113
BEARER ACCOUNTS
DEPOSIT SYSTEMS
103
CASH MANAGEMENT SYSTEMS
104
114
115
118
MAKER BANK
108
117
CHECK STORAGE
105
121
CHECK CAPTURE SYSTEM
109
116
119
124
BANK OF FIRST DEPOSIT FRB
106
ACCOUNTING SYSTEMS
DEPOSIT SYSTEMS
110
CASH MANAGEMENT SYSTEMS
111
122
123
CHECK STORAGE
112

FIG. 1

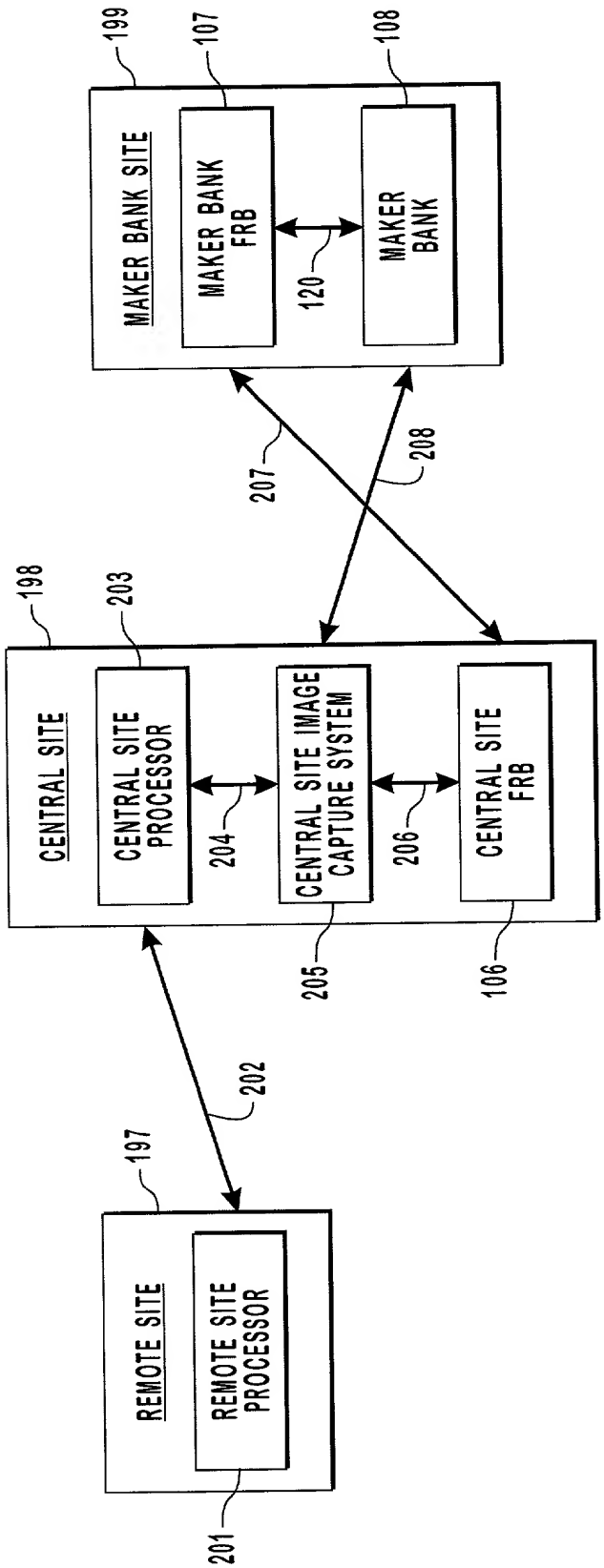
199
107
108
MAKER BANK SITE
MAKER BANK FRB
120
MAKER BANK
207
208
198
203
CENTRAL SITE
CENTRAL SITE PROCESSOR
204
CENTRAL SITE IMAGE CAPTURE SYSTEM
206
CENTRAL SITE FRB
205
106
202
197
REMOTE SITE
REMOTE SITE PROCESSOR
201

FIG. 2

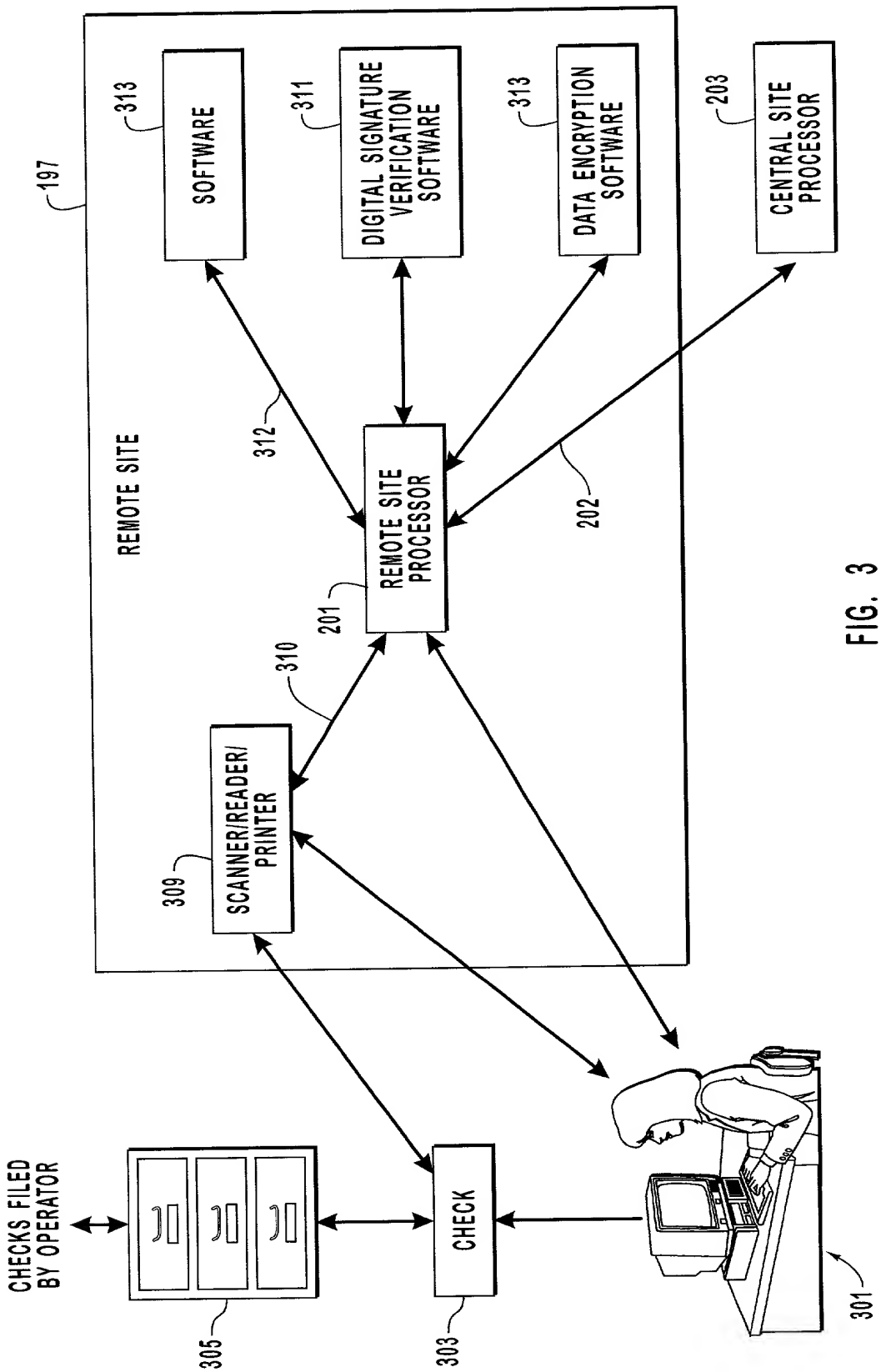
CHECKS FILED BY OPERATOR
305
CHECK
303
301
197
REMOTE SITE
SOFTWARE
313
DIGITAL SIGNATURE VERIFICATION SOFTWARE
311
DATA ENCRYPTION SOFTWARE
313
CENTRAL SITE PROCESSOR
203
312
REMOTE SITE PROCESSOR
201
202
310
SCANNER/READER/ PRINTER
309

FIG. 3

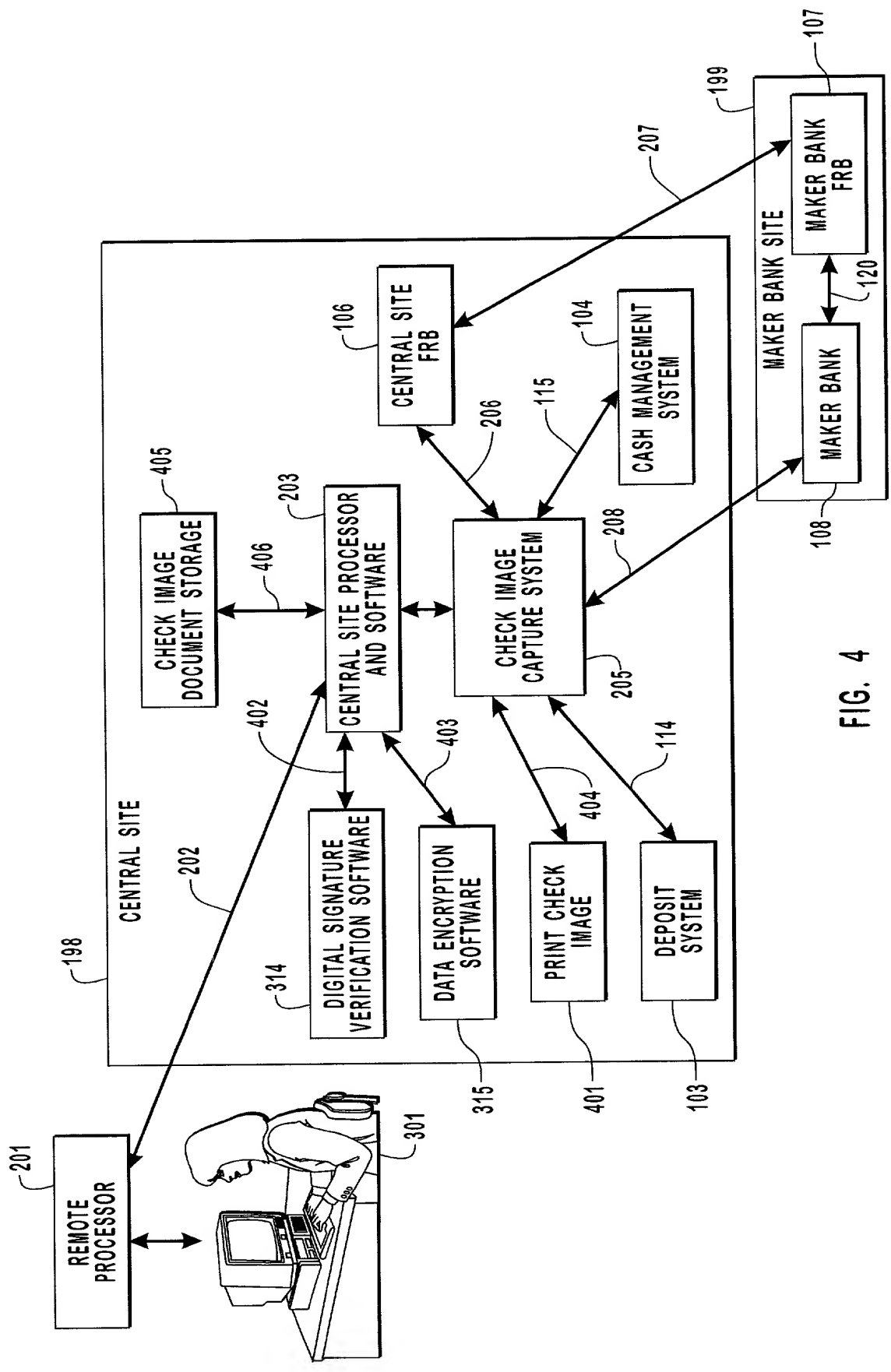
CENTRAL SITE
198
REMOTE PROCESSOR
201
202
CHECK IMAGE DOCUMENT STORAGE
405
406
CENTRAL SITE PROCESSOR AND SOFTWARE
203
402
403
DIGITAL SIGNATURE VERIFICATION SOFTWARE
314
DATA ENCRYPTION SOFTWARE
315
PRINT CHECK IMAGE
401
DEPOSIT SYSTEM
103
CENTRAL SITE FRB
106
206
CHECK IMAGE CAPTURE SYSTEM
205
208
404
114
CASH MANAGEMENT SYSTEM
104
115
207
MAKER BANK SITE
199
MAKER BANK FRB
107
MAKER BANK
108
120
301

FIG. 4

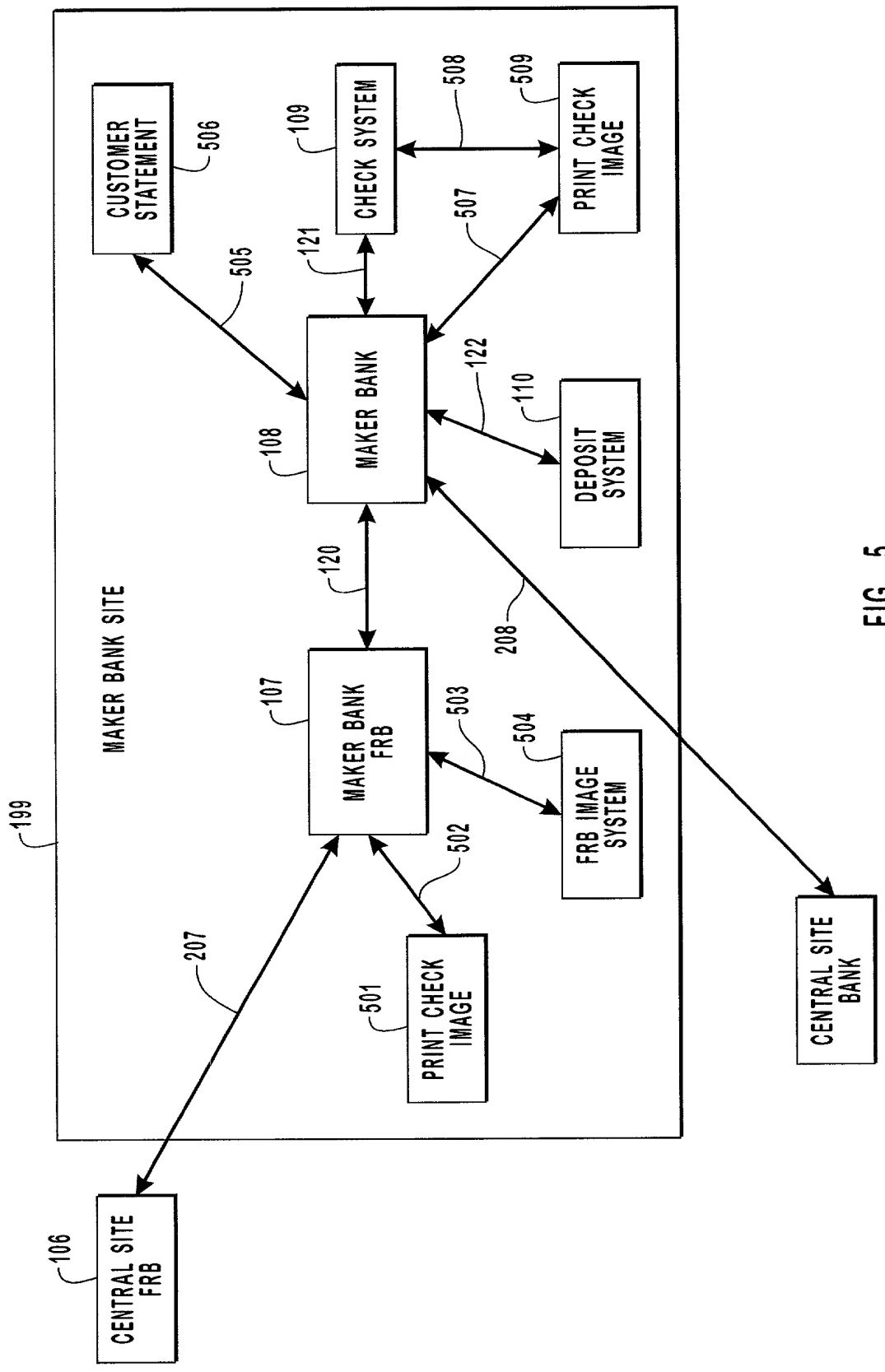
MAKER BANK SITE
199
CUSTOMER STATEMENT
506
CHECK SYSTEM
109
508
PRINT CHECK IMAGE
509
505
121
507
MAKER BANK
108
122
110
DEPOSIT SYSTEM
120
208
MAKER BANK FRB
107
503
504
FRB IMAGE SYSTEM
502
207
PRINT CHECK IMAGE
501
CENTRAL SITE FRB
106
CENTRAL SITE BANK

FIG. 5

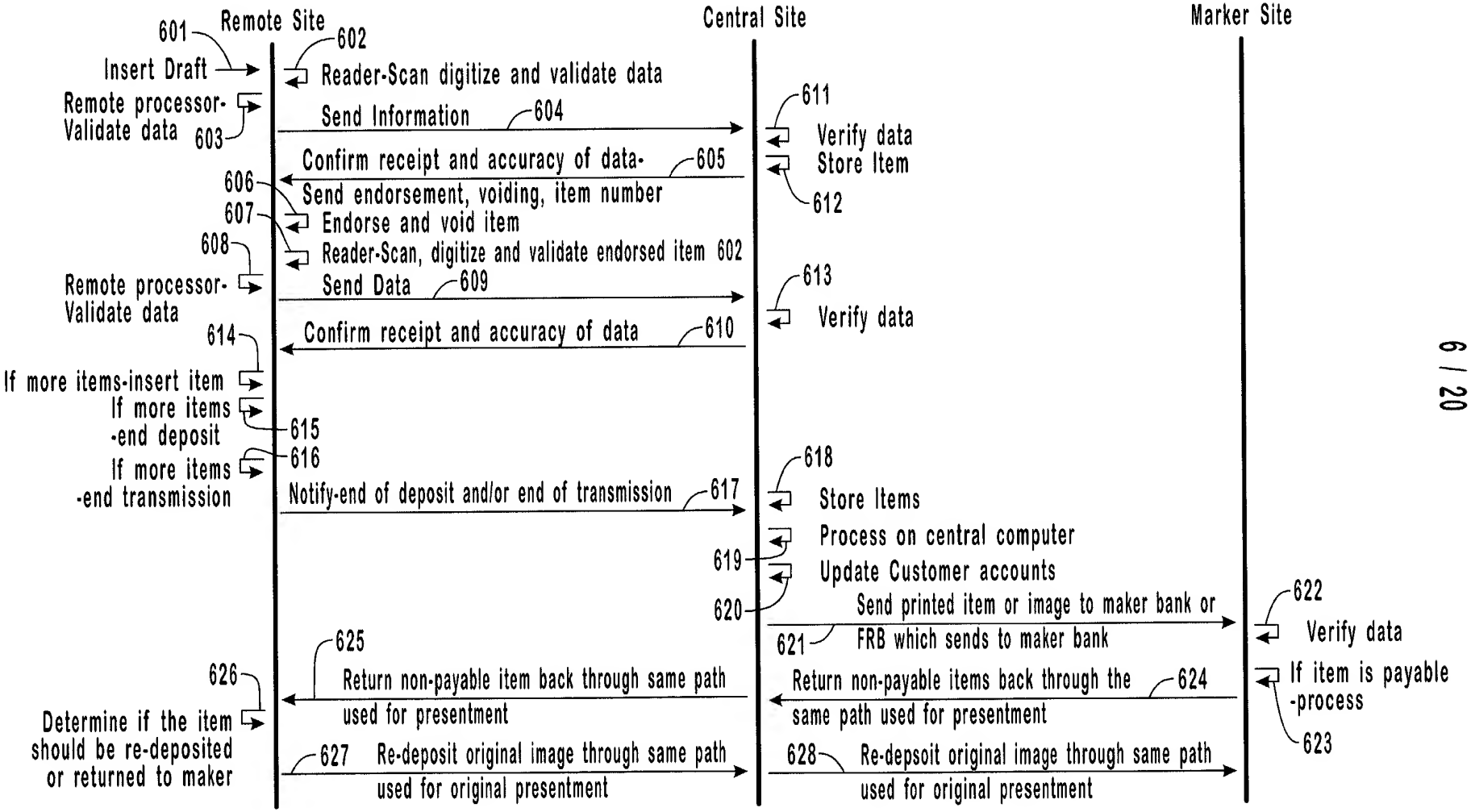
Remote Site
Central Site
Marker Site
601
602
Insert Draft
Reader-Scan digitize and validate data
Remote processor-
Validate data
603
Send Information
604
611
Verify data
Store Item
612
Confirm receipt and accuracy of data-
605
606
Send endorsement, voiding, item number
607
Endorse and void item
Reader-Scan, digitize and validate endorsed item 602
608
Remote processor-
Validate data
Send Data
609
613
Verify data
Confirm receipt and accuracy of data
610
614
If more items-insert item
If more items
-end deposit
615
If more items
-end transmission
616
Notify-end of deposit and/or end of transmission
617
618
Store Items
Process on central computer
619
Update Customer accounts
620
Send printed item or image to maker bank or
FRB which sends to maker bank
621
622
Verify data
If item is payable
-process
623
625
Return non-payable item back through same path
used for presentment
626
Determine if the item
should be re-deposited
or returned to maker
Return non-payable items back through the
same path used for presentment
624
627
Re-deposit original image through same path
used for original presentment
628
Re-depsoit original image through same path
used for original presentment

FIG. 6

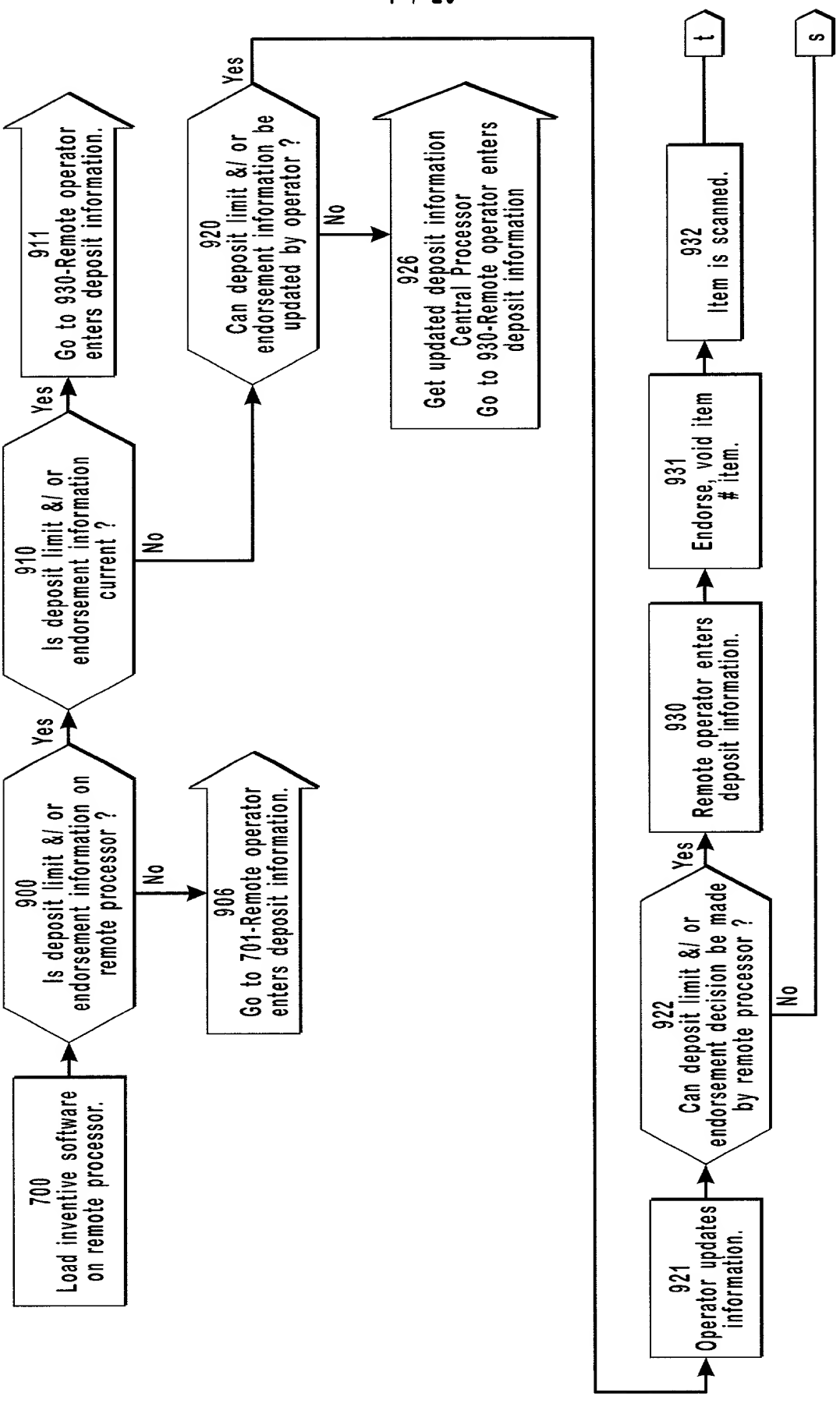
700
Load inventive software on remote processor.
900
Is deposit limit &/ or endorsement information on remote processor ?
Yes
No
906
Go to 701-Remote operator enters deposit information.
910
Is deposit limit &/ or endorsement information current ?
Yes
No
911
Go to 930-Remote operator enters deposit information.
920
Can deposit limit &/ or endorsement information be updated by operator ?
Yes
No
926
Get updated deposit information Central Processor
Go to 930-Remote operator enters deposit information
921
Operator updates information.
922
Can deposit limit &/ or endorsement decision be made by remote processor ?
Yes
No
930
Remote operator enters deposit information.
931
Endorse, void item # item.
932
Item is scanned.
t
s

FIG. 7a

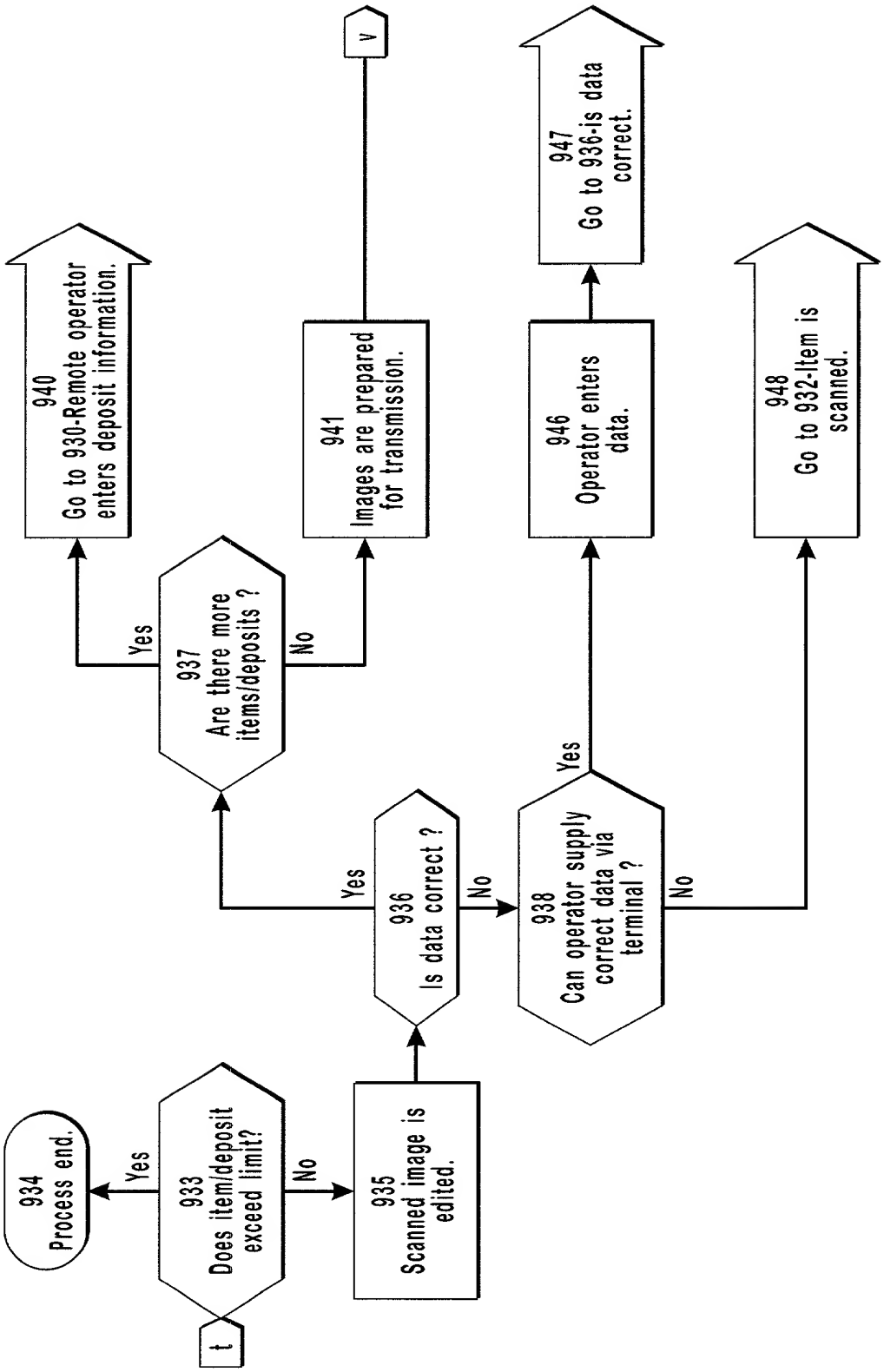
t
933
Does item/deposit exceed limit?
Yes
934
Process end.
No
935
Scanned image is edited.
936
Is data correct ?
Yes
937
Are there more items/deposits ?
Yes
940
Go to 930-Remote operator enters deposit information.
No
941
Images are prepared for transmission.
v
No
938
Can operator supply correct data via terminal ?
Yes
946
Operator enters data.
947
Go to 936-is data correct.
948
Go to 932-Item is scanned.

FIG. 7b

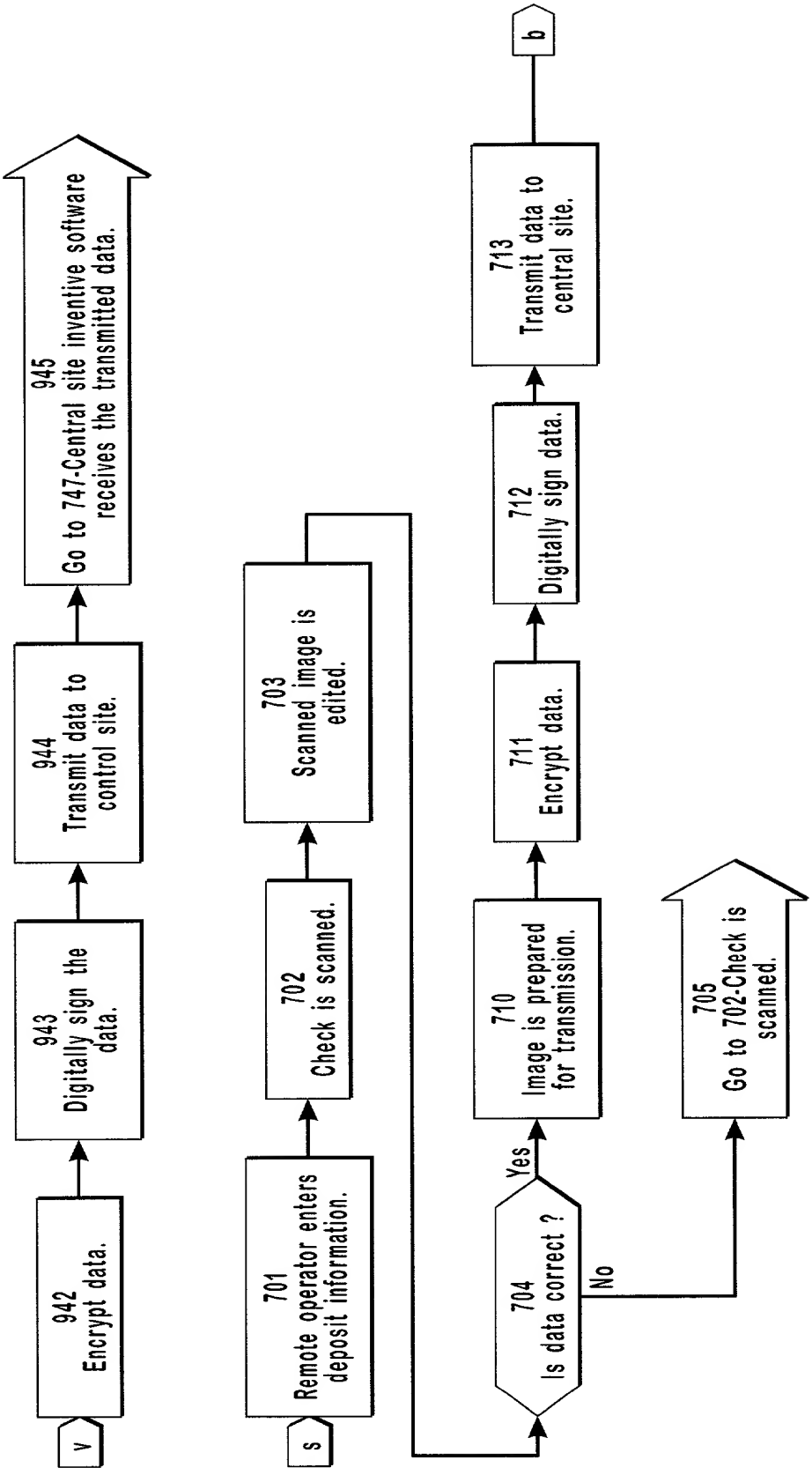
701
Remote operator enters deposit information.
702
Check is scanned.
703
Scanned image is edited.
704
Is data correct ?
Yes
No
705
Go to 702-Check is scanned.
710
Image is prepared for transmission.
711
Encrypt data.
712
Digitally sign data.
713
Transmit data to central site.
942
Encrypt data.
943
Digitally sign the data.
944
Transmit data to control site.
945
Go to 747-Central site inventive software receives the transmitted data.
s
b
v

FIG. 7c

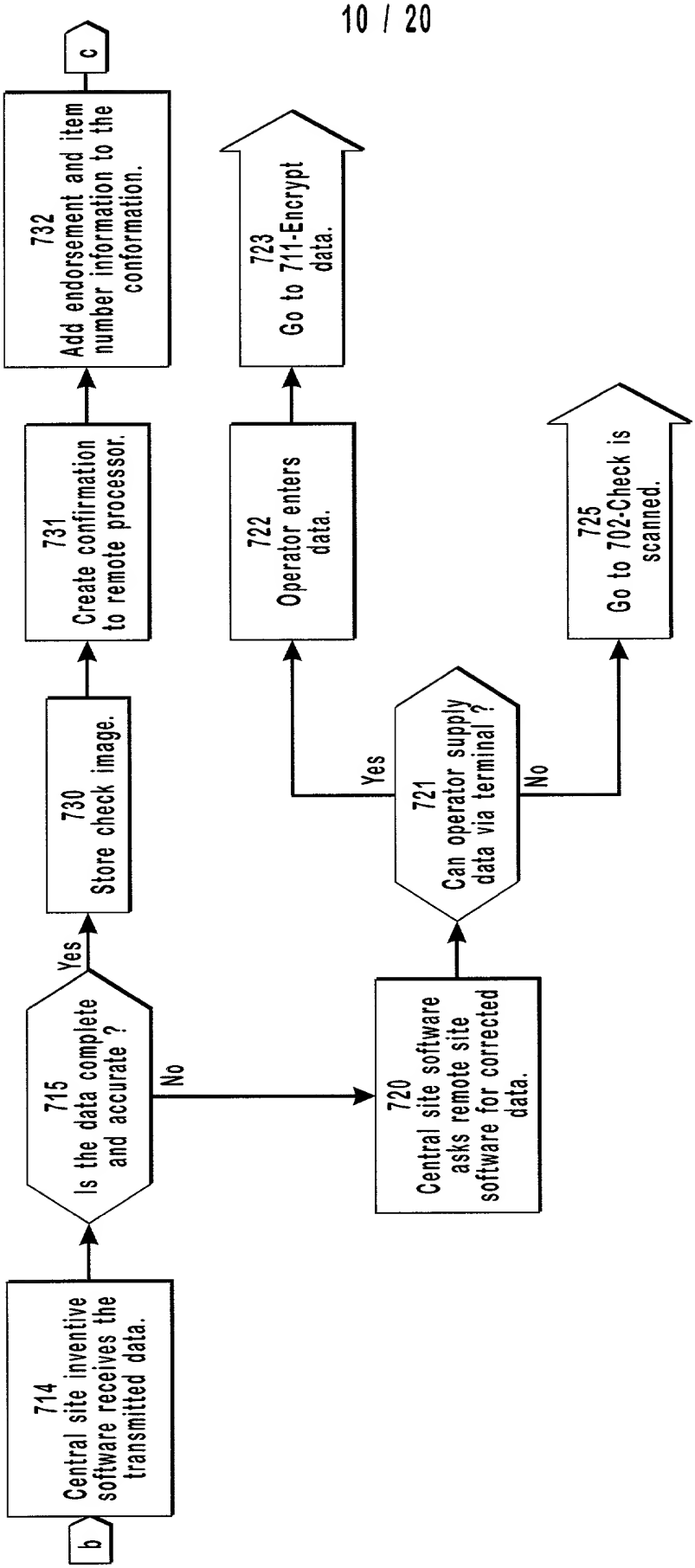
b
714
Central site inventive software receives the transmitted data.
715
Is the data complete and accurate ?
Yes
No
730
Store check image.
731
Create confirmation to remote processor.
732
Add endorsement and item number information to the conformation.
c
720
Central site software asks remote site software for corrected data.
721
Can operator supply data via terminal ?
Yes
No
722
Operator enters data.
723
Go to 711-Encrypt data.
725
Go to 702-Check is scanned.

FIG. 7d

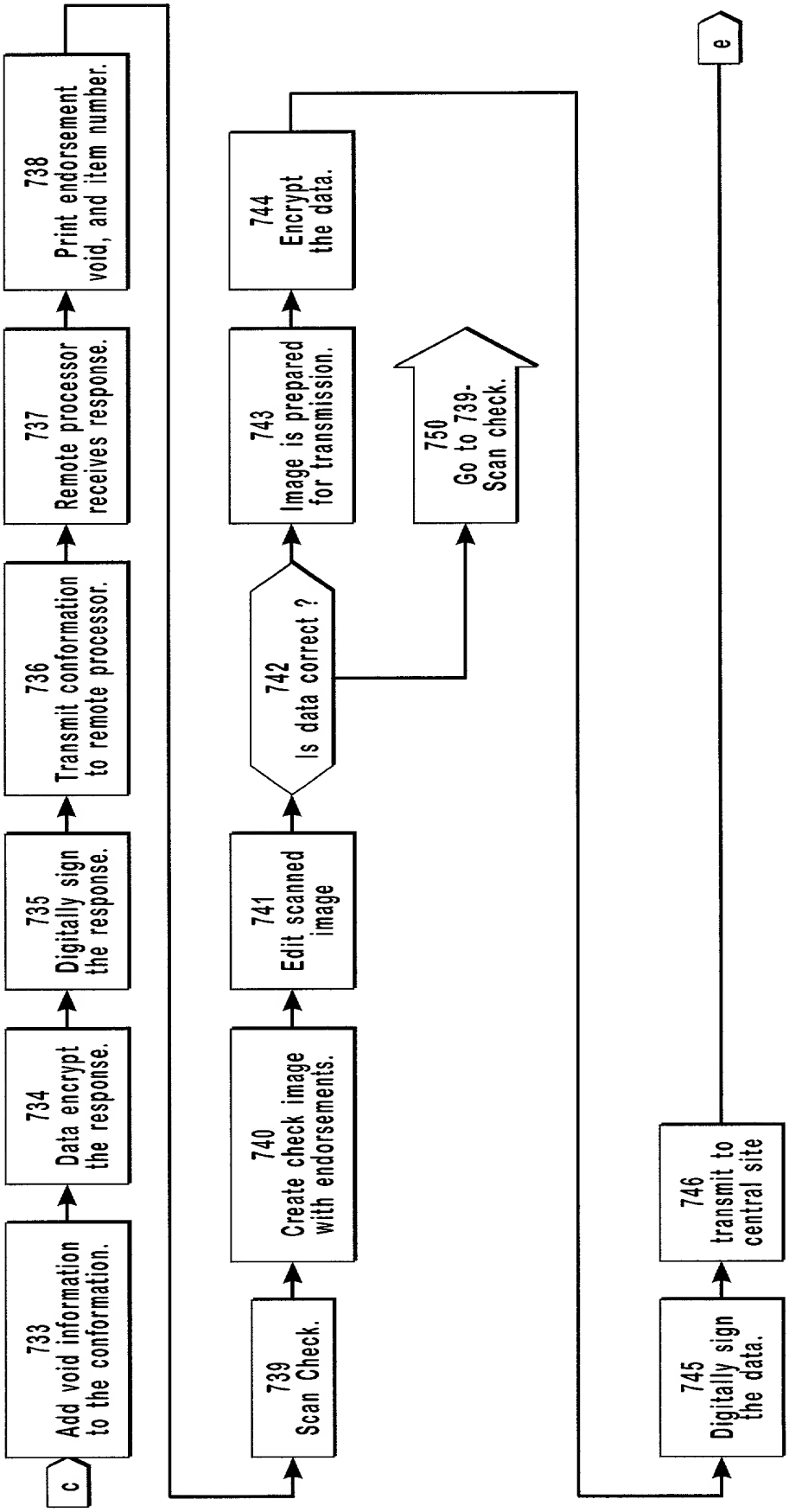
c
733
Add void information to the conformation.
734
Data encrypt the response.
735
Digitally sign the response.
736
Transmit conformation to remote processor.
737
Remote processor receives response.
738
Print endorsement void, and item number.
739
Scan Check.
740
Create check image with endorsements.
741
Edit scanned image
742
Is data correct ?
743
Image is prepared for transmission.
744
Encrypt the data.
745
Digitally sign the data.
746
transmit to central site
e
750
Go to 739-
Scan check.

FIG. 7e

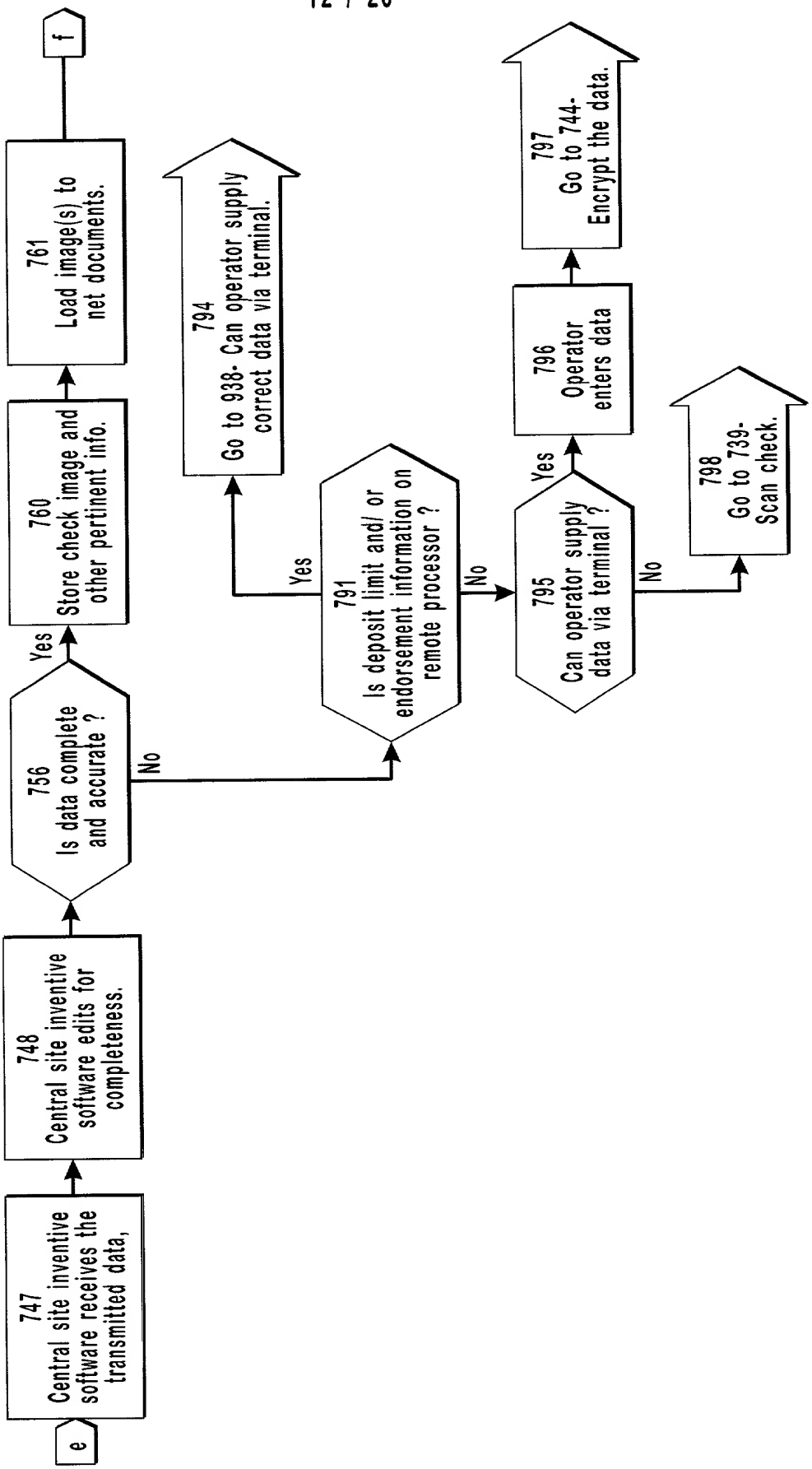
e
747
Central site inventive software receives the transmitted data,
748
Central site inventive software edits for completeness.
756
Is data complete and accurate ?
Yes
760
Store check image and other pertinent info.
761
Load image(s) to net documents.
f
No
791
Is deposit limit and/ or endorsement information on remote processor ?
Yes
794
Go to 938- Can operator supply correct data via terminal.
No
795
Can operator supply data via terminal ?
Yes
796
Operator enters data
797
Go to 744- Encrypt the data.
No
798
Go to 739- Scan check.

FIG. 7f

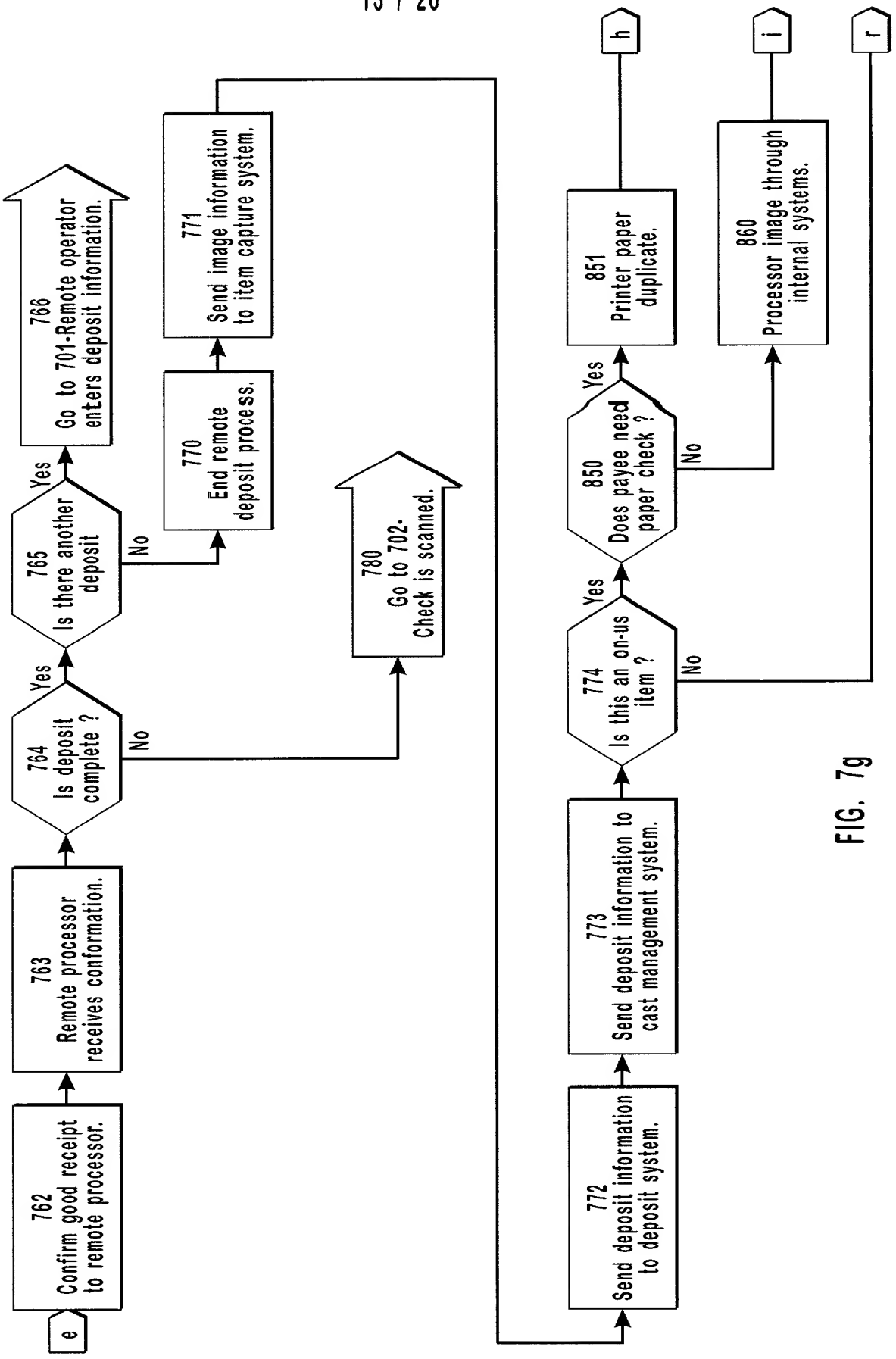
e
762
Confirm good receipt to remote processor.
763
Remote processor receives conformation.
764
Is deposit complete ?
Yes
No
765
Is there another deposit
Yes
No
766
Go to 701-Remote operator enters deposit information.
770
End remote deposit process.
771
Send image information to item capture system.
780
Go to 702-Check is scanned.
772
Send deposit information to deposit system.
773
Send deposit information to cast management system.
774
Is this an on-us item ?
Yes
No
850
Does payee need paper check ?
Yes
No
851
Printer paper duplicate.
860
Processor image through internal systems.
h
i
r

FIG. 7g

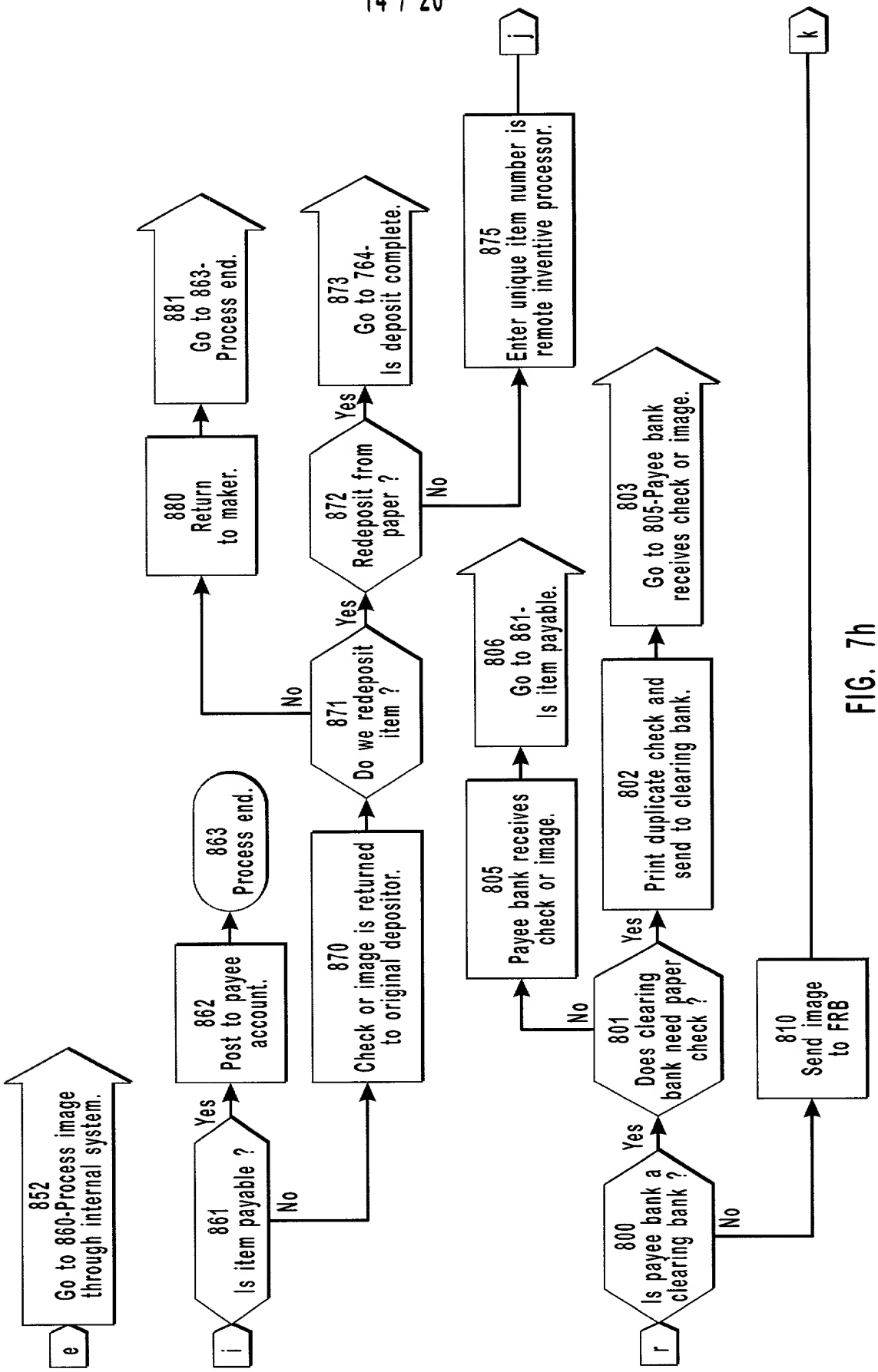
e
852
Go to 860-Process image through internal system.
i
861
Is item payable ?
Yes
No
862
Post to payee account.
863
Process end.
870
Check or image is returned to original depositor.
871
Do we redeposit item ?
Yes
No
872
Redeposit from paper ?
Yes
No
873
Go to 764-
Is deposit complete.
880
Return to maker.
881
Go to 863-
Process end.
875
Enter unique item number is remote inventive processor.
j
r
800
Is payee bank a clearing bank ?
Yes
No
801
Does clearing bank need paper check ?
Yes
No
802
Print duplicate check and send to clearing bank.
803
Go to 805-Payee bank receives check or image.
805
Payee bank receives check or image.
806
Go to 861-
Is item payable.
810
Send image to FRB
k

FIG. 7h

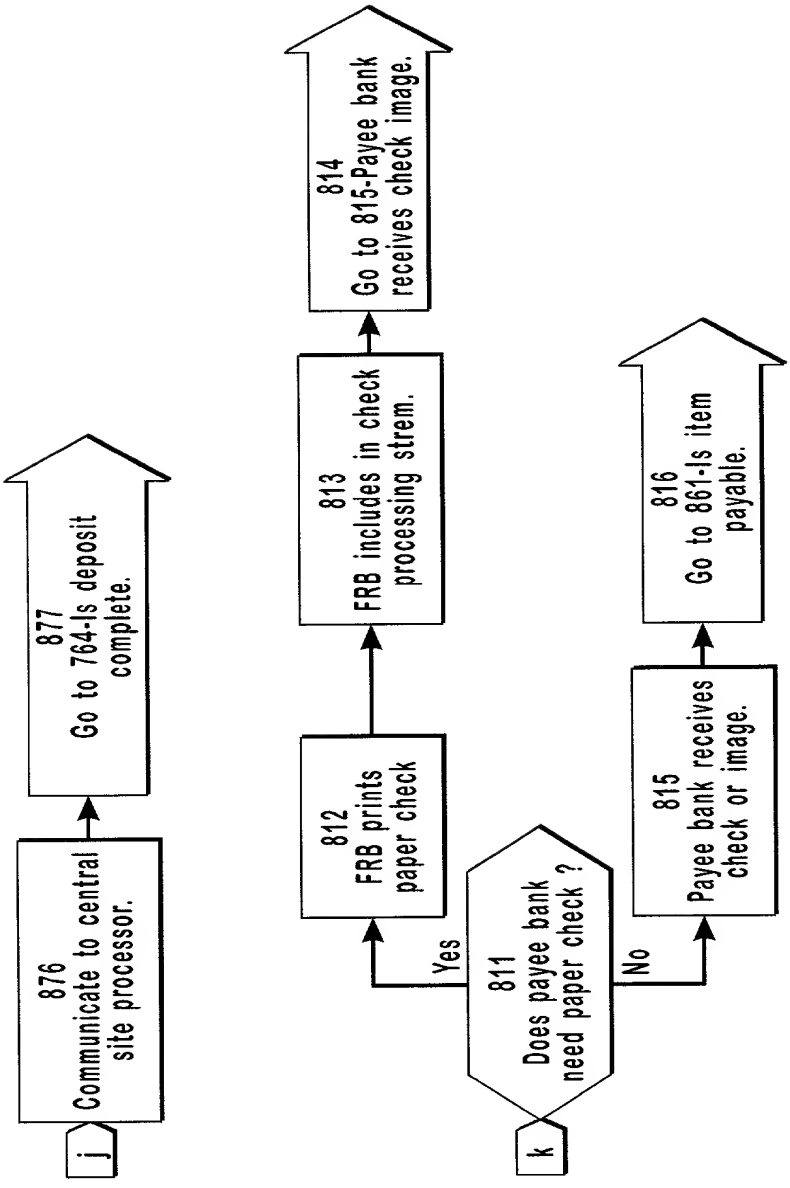
j
876
Communicate to central site processor.
877
Go to 764-Is deposit complete.
811
Does payee bank need paper check ?
Yes
812
FRB prints paper check
813
FRB includes in check processing strem.
814
Go to 815-Payee bank receives check image.
No
815
Payee bank receives check or image.
816
Go to 861-Is item payable.
k

FIG. 7i

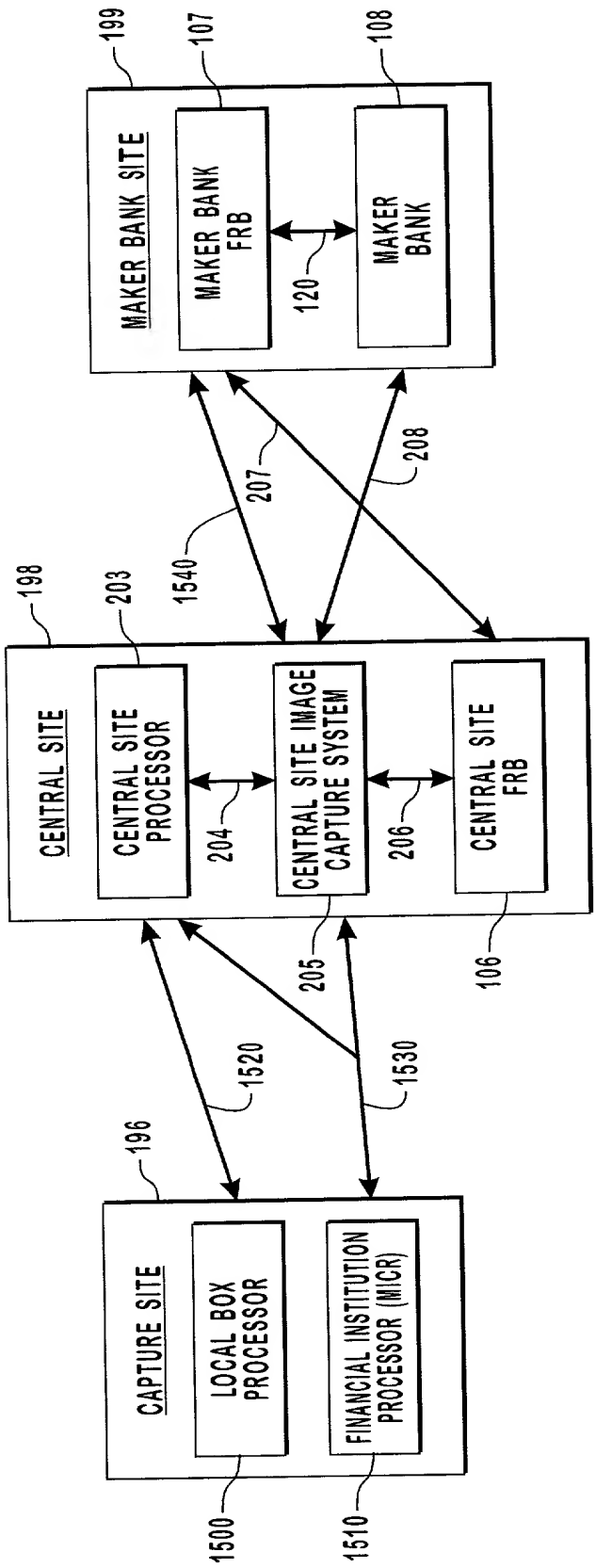
199
107
108
MAKER BANK SITE
MAKER BANK FRB
120
MAKER BANK
1540
207
208
198
203
CENTRAL SITE
CENTRAL SITE PROCESSOR
204
CENTRAL SITE IMAGE CAPTURE SYSTEM
206
CENTRAL SITE FRB
205
106
1520
1530
196
CAPTURE SITE
LOCAL BOX PROCESSOR
FINANCIAL INSTITUTION PROCESSOR (MICR)
1500
1510

FIG. 8

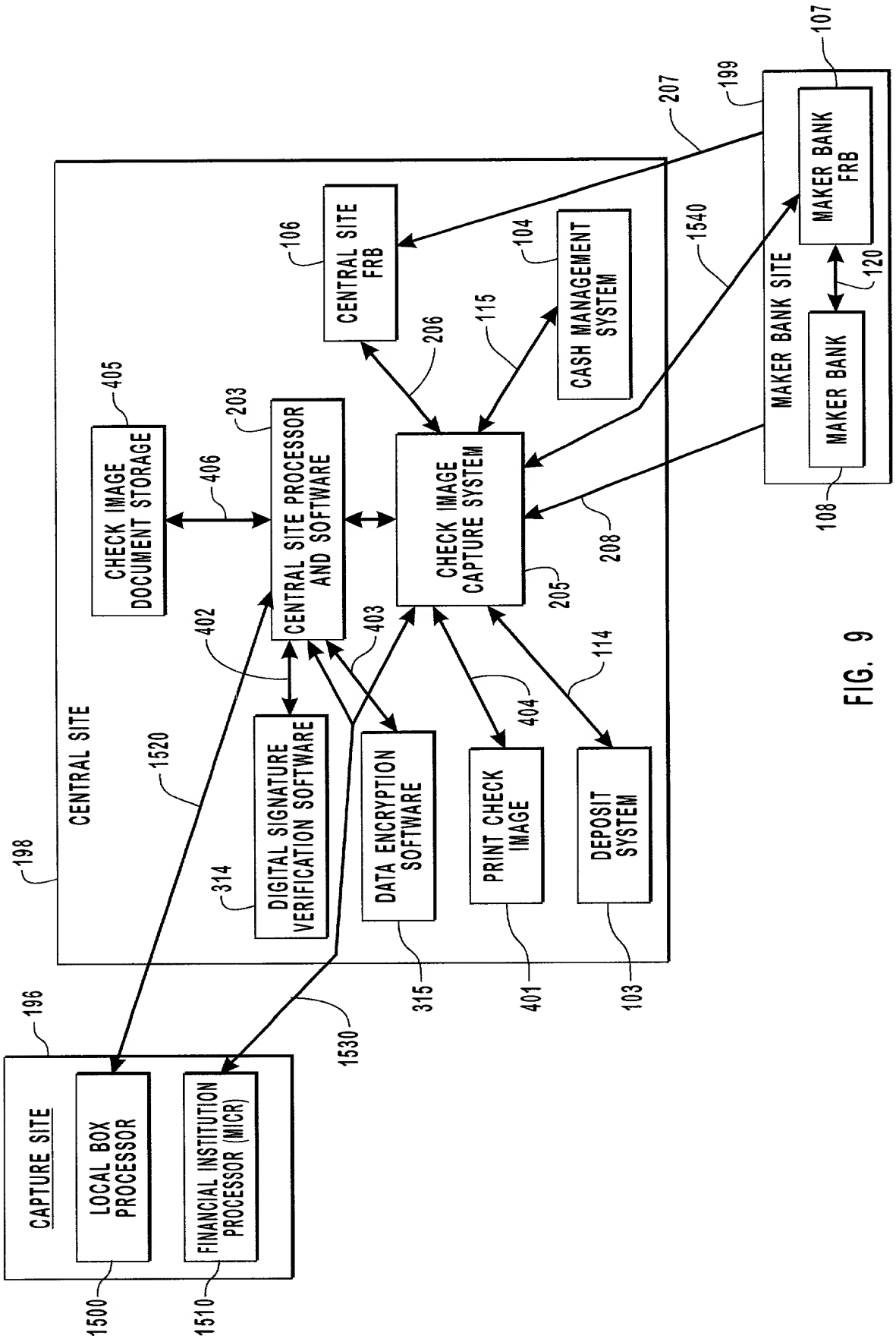
CENTRAL SITE
198
CAPTURE SITE
196
LOCAL BOX PROCESSOR
FINANCIAL INSTITUTION PROCESSOR (MICR)
1500
1510
1530
1520
CHECK IMAGE DOCUMENT STORAGE
405
406
CENTRAL SITE PROCESSOR AND SOFTWARE
203
CENTRAL SITE FRB
106
CASH MANAGEMENT SYSTEM
104
206
115
CHECK IMAGE CAPTURE SYSTEM
205
207
208
1540
MAKER BANK SITE
199
MAKER BANK FRB
107
MAKER BANK
120
108
402
403
404
114
DIGITAL SIGNATURE VERIFICATION SOFTWARE
314
DATA ENCRYPTION SOFTWARE
315
PRINT CHECK IMAGE
401
DEPOSIT SYSTEM
103

FIG. 9

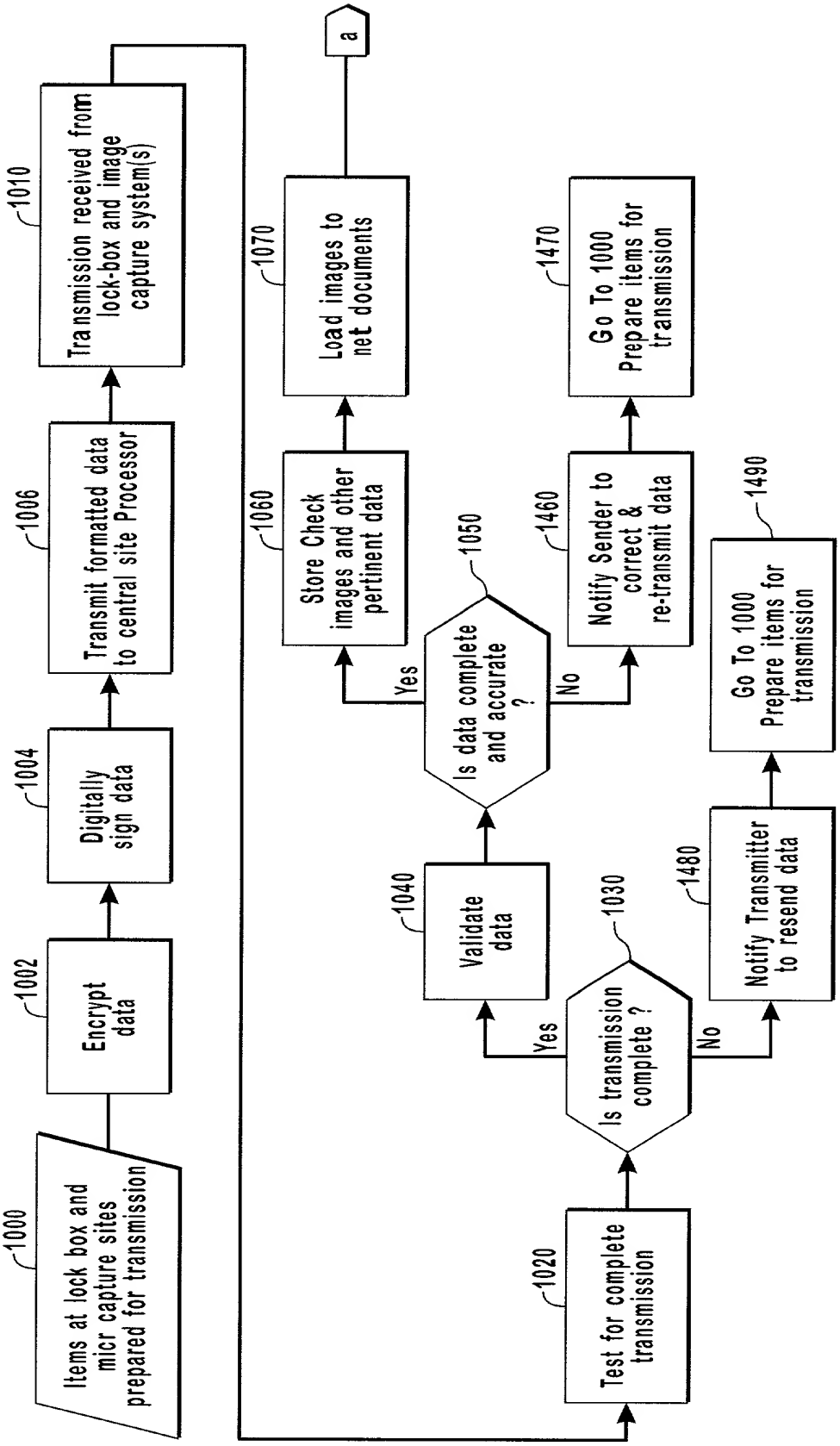
1000
Items at lock box and micr capture sites prepared for transmission
1002
Encrypt data
1004
Digitally sign data
1006
Transmit formatted data to central site Processor
1010
Transmission received from lock-box and image capture system(s)
1020
Test for complete transmission
1030
Is transmission complete ?
Yes
No
1040
Validate data
1050
Is data complete and accurate ?
Yes
No
1060
Store Check images and other pertinent data
1070
Load images to net documents
a
1460
Notify Sender to correct & re-transmit data
1470
Go To 1000 Prepare items for transmission
1480
Notify Transmitter to resend data
1490
Go To 1000 Prepare items for transmission

FIG. 10A

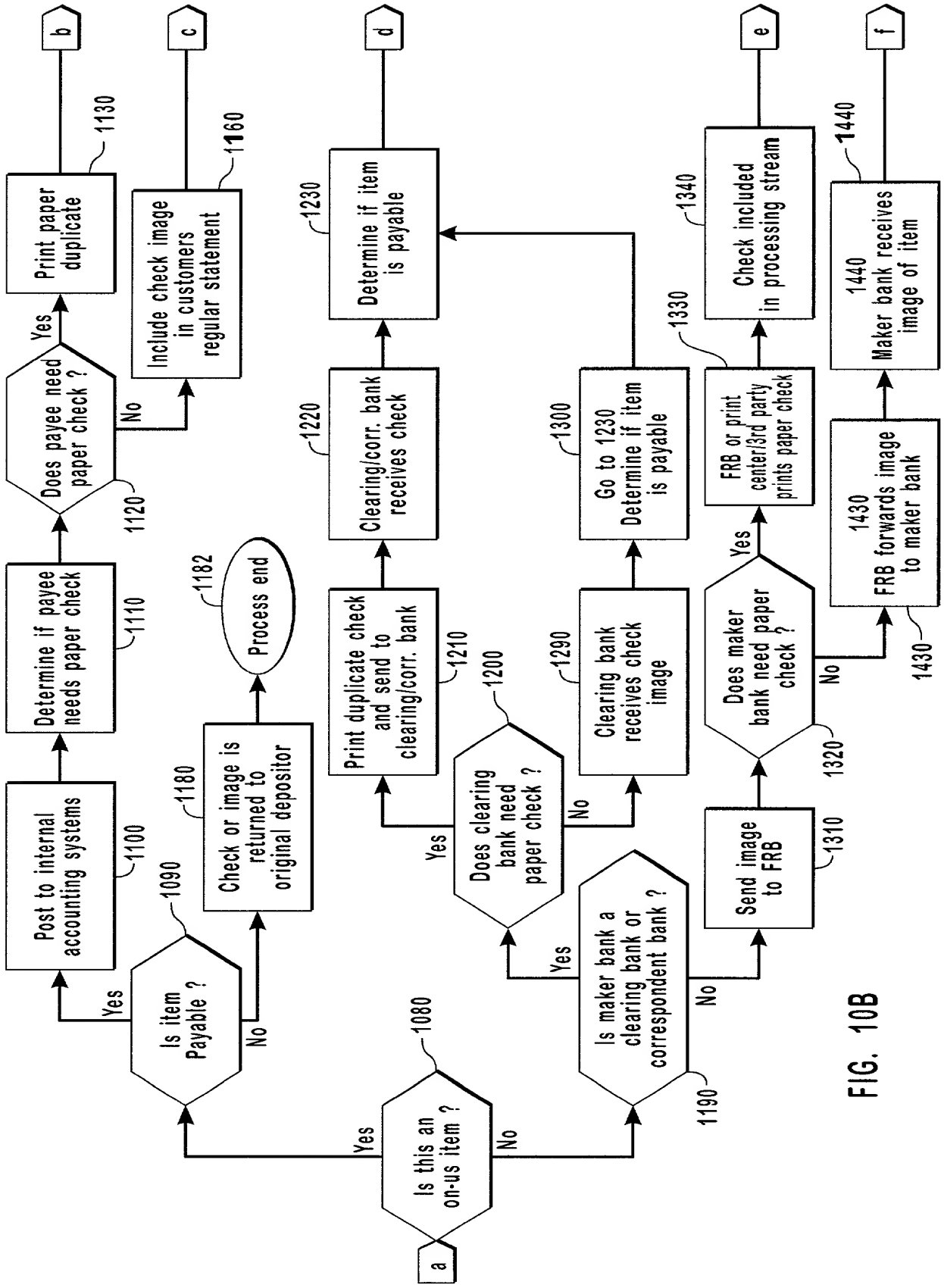
a
Is this an on-us item ?
1080
Yes
No
Is item Payable ?
1090
Yes
No
Post to internal accounting systems
1100
Determine if payee needs paper check
1110
Does payee need paper check ?
1120
Yes
No
Print paper duplicate
1130
b
Check or image is returned to original depositor
1180
Process end
1182
Include check image in customers regular statement
1160
c
Is maker bank a clearing bank or correspondent bank ?
1190
Yes
No
Does clearing bank need paper check ?
1200
Yes
No
Print duplicate check and send to clearing/corr. bank
1210
Clearing/corr. bank receives check
1220
Determine if item is payable
1230
d
Clearing bank receives check image
1290
Go to 1230 Determine if item is payable
1300
Send image to FRB
1310
Does maker bank need paper check ?
1320
Yes
No
FRB or print center/3rd party prints paper check
1330
Check included in processing stream
1340
e
FRB forwards image to maker bank
1430
1430
Maker bank receives image of item
1440
f

FIG. 10B

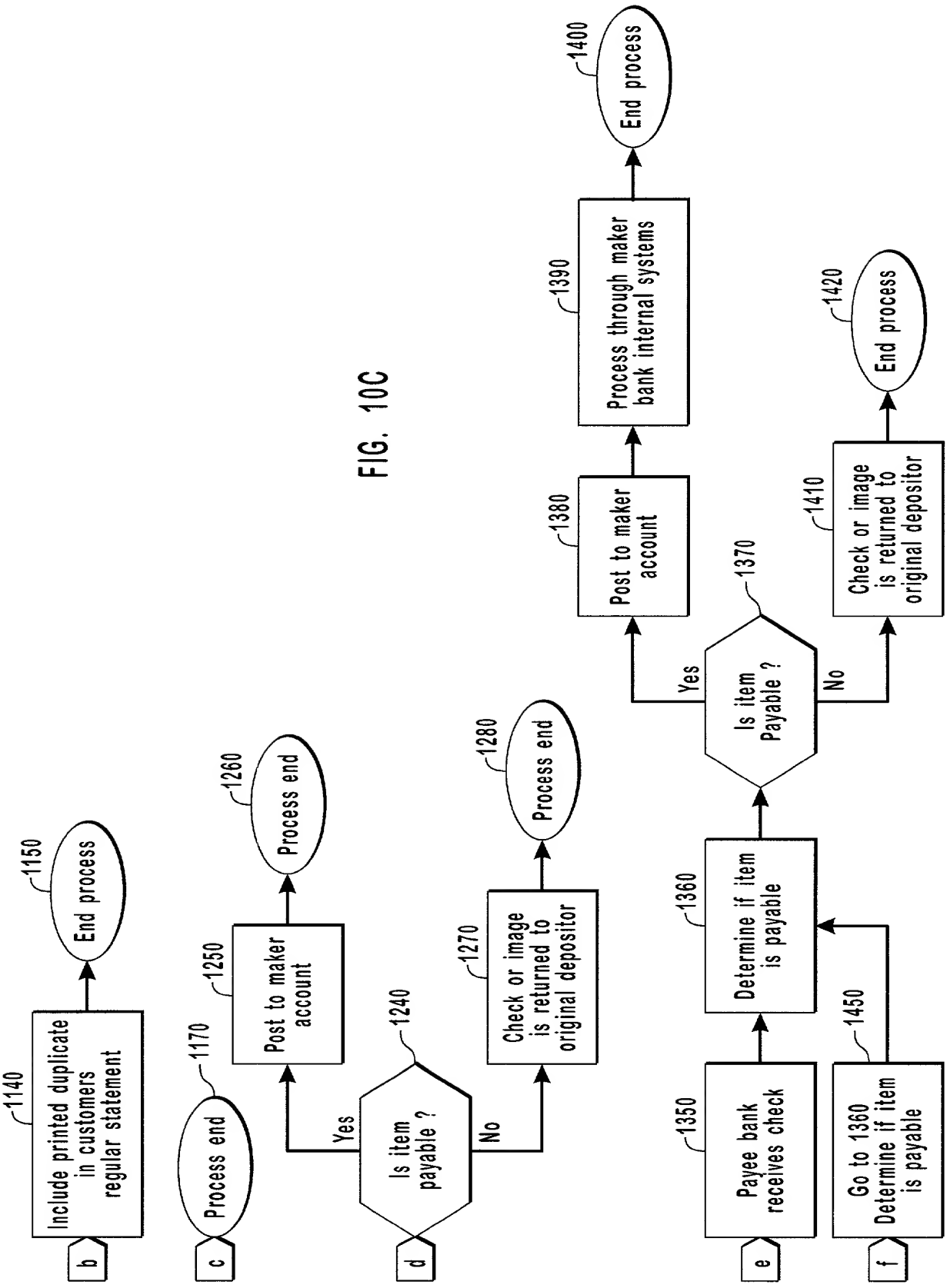
1140
Include printed duplicate in customers regular statement
1150
End process
b
1170
Process end
c
1240
Is item payable ?
Yes
1250
Post to maker account
1260
Process end
No
1270
Check or image is returned to original depositor
1280
Process end
d
1350
Payee bank receives check
e
1360
Determine if item is payable
1370
Is item Payable ?
Yes
1380
Post to maker account
1390
Process through maker bank internal systems
1400
End process
No
1410
Check or image is returned to original depositor
1420
End process
1450
Go to 1360 Determine if item is payable
f

FIG. 10C

Express Mail Label No. EL571477579US

PATENT APPLICATION
Docket No: 7905.15.1

DECLARATION, POWER OF ATTORNEY, AND PETITION

We,

(1) Name: Danne L. Buchanan
Address: 3362 East Oak Hollow Circle
Sandy, Utah 84093

Citizenship: United States of America

(2) Name: William Ronald Titus
Address: 345 North Coventry Circle
Fruit Heights, Utah 84037

Citizenship: United States of America

declare: that our citizenship, residence address, and post office address are as set forth above; that we verily believe we are the original, first, and joint inventors of the subject matter of the invention or discovery entitled METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION for which a patent is sought and which is described and claimed in the specification attached hereto; that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to herein; and that we acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Section 1.56(a) of Title 37 of the Code of Federal Regulations.

We hereby claim the benefit under Section 120 of Title 35 of the United States Code of the earlier filed pending application, Serial No. 09/560,779, filed April 28, 2000; and, insofar as the subject matter of each of the claims of this application is not disclosed in the earlier filed pending application in the manner provided by the first paragraph of Section 112 of Title 35 of

the United States Code, we acknowledge the duty to disclose all information known to be material to patentability, as defined in Section 1.56 of Title 37 of the Code of Federal Regulations, which became available between the filing date of the earlier filed application and the filing date of this application.

We declare further that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the application or any patent issuing thereon.

We hereby appoint as our attorneys and/or patent agents all listed under Customer No. 022913, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. All correspondence and telephonic communications should be directed to:

Kevin K. Johanson
WORKMAN, NYDEGGER & SEELEY
1000 Eagle Gate Tower
60 East South Temple
Salt Lake City, Utah 84111
Telephone: (801) 533-9800
Facsimile: (801) 328-1707

Wherefore, we pray that Letters Patent be granted to us for the invention or discovery described and claimed in the foregoing specification and claims, declaration, power of attorney, and this petition.

DATED this 25th day of September, 2000.

Inventor: _____
DANNE L. BUCHANAN
3362 East Oak Hollow Circle
Sandy, Utah 84093

DATED this 25th day of September, 2000.

Inventor: W. R. Titus
WILLIAM RONALD TITUS
345 North Coventry Circle
Fruit Heights, Utah 84037

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